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New equipment combination helps C&O **cut costs** and increase its track-work output.....p. 24

November 8, 1965

RAILWAY AGE WEEKLY

How must rail managements adjust?

TECHNOLOGICAL CHANGE AND THE RAILROADS

p. 16

What's ahead for the brotherhoods?

Who stands to gain— and lose?

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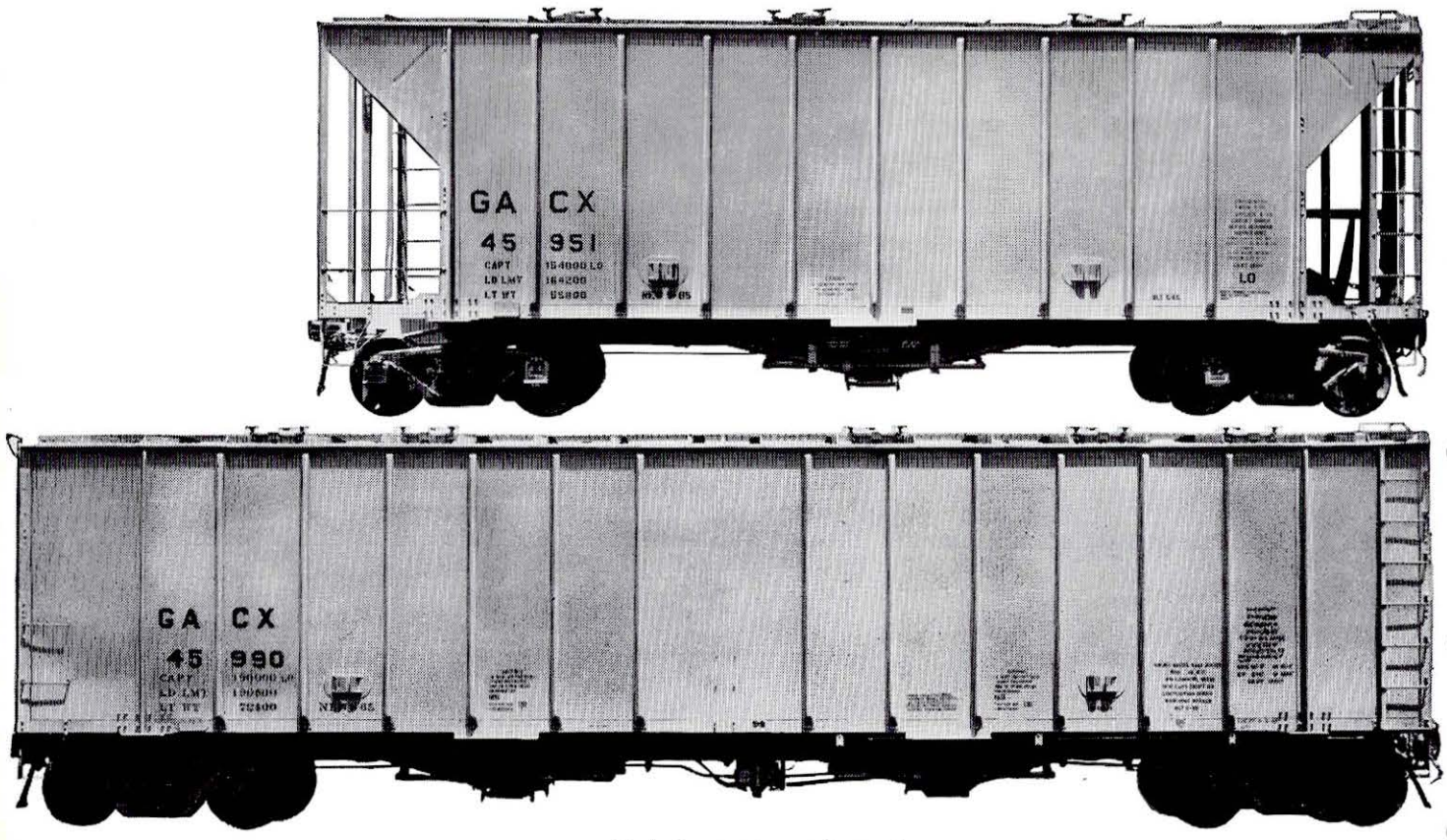

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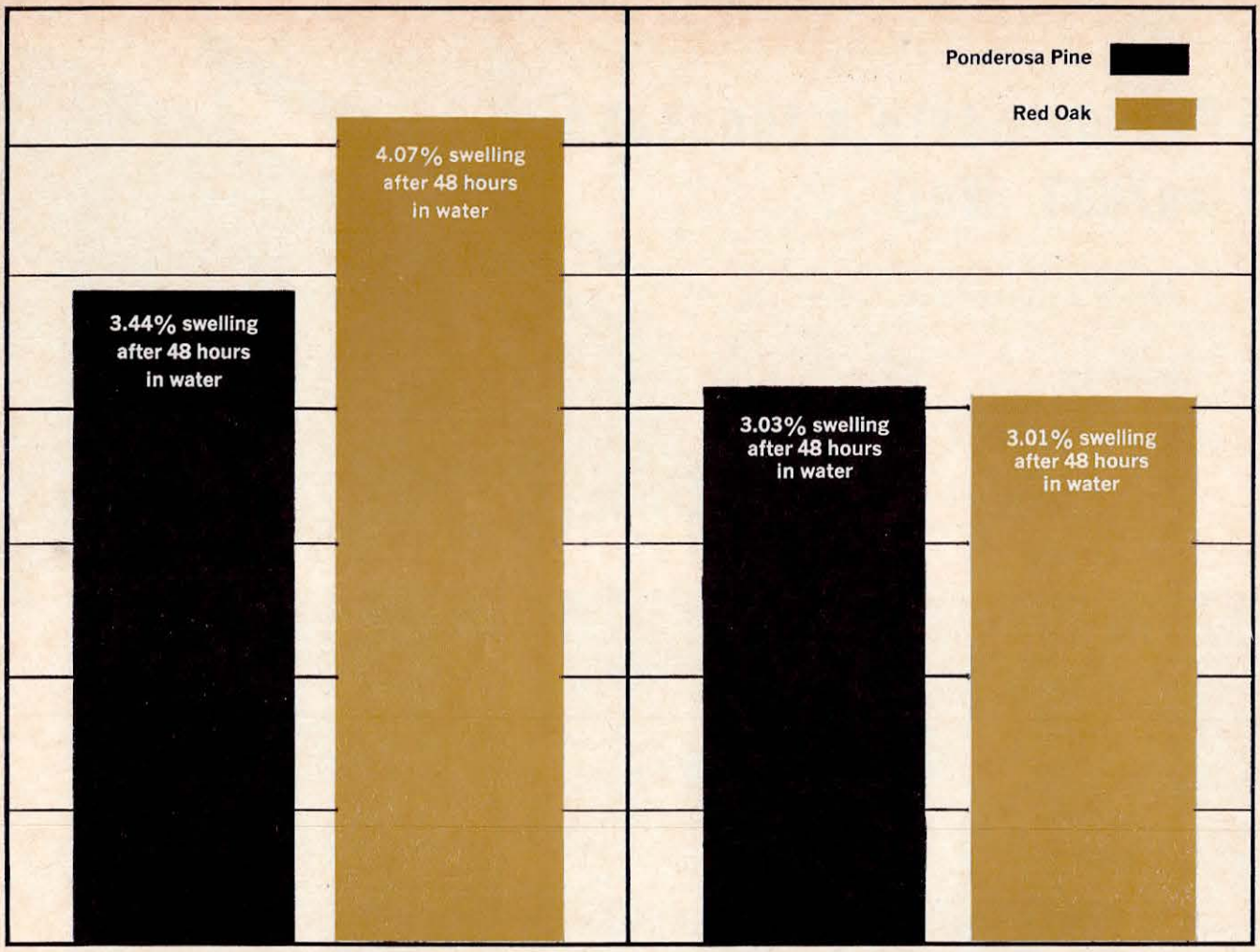
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Wood treated with conventional preservative and SHELLWAX WT

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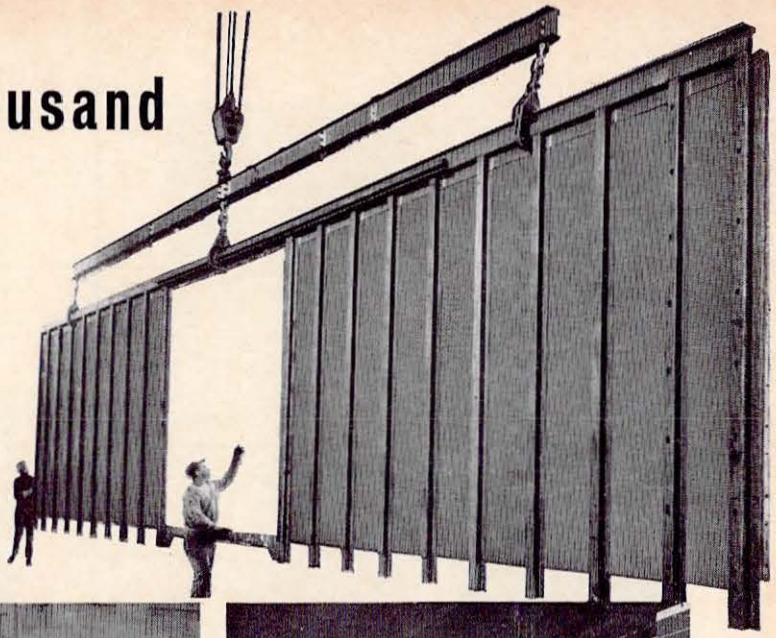
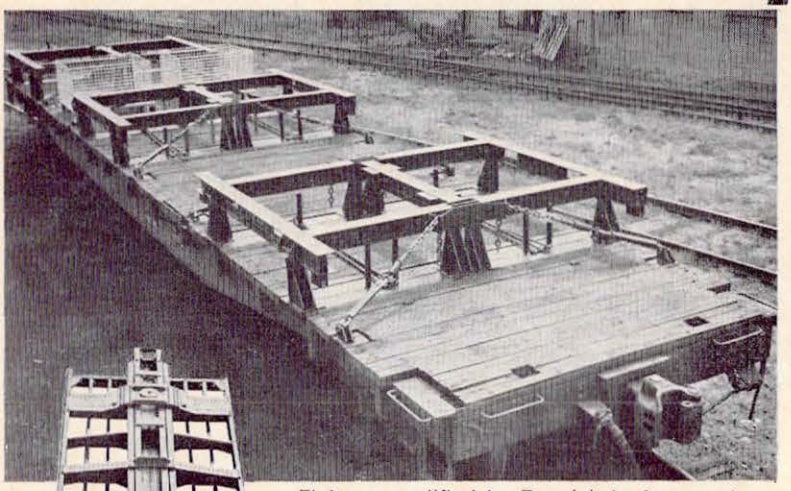
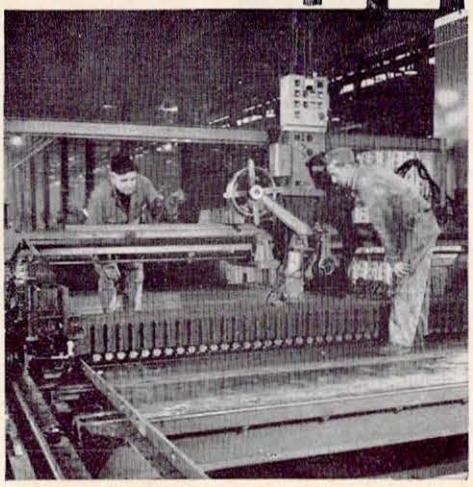


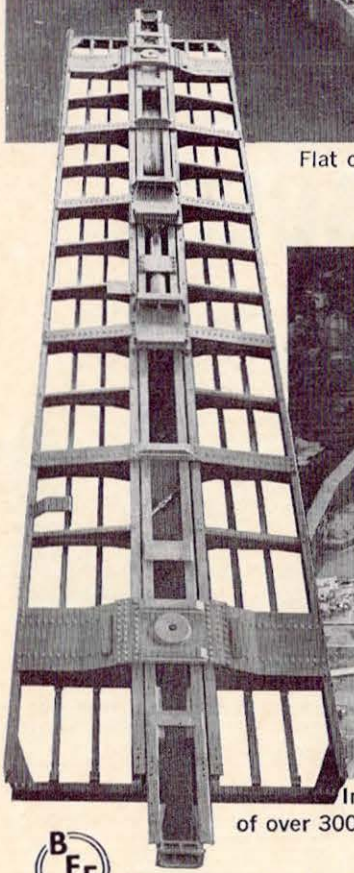
One of 1200 car sides built for a large northeastern railroad.

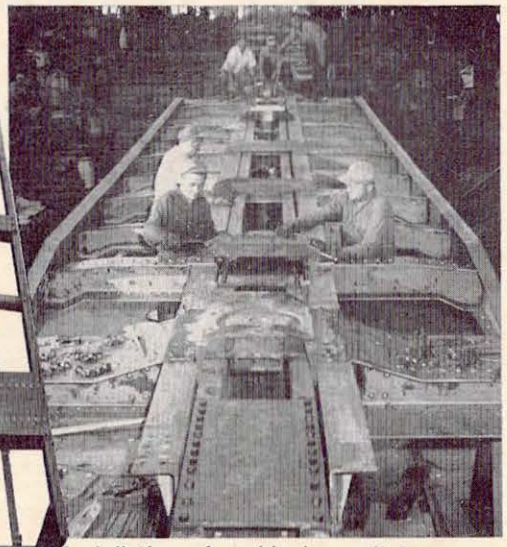


Flat car modified by Berwick to transport '65 auto frames.



Automatic equipment used in car side welding.





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TECHNOLOGICAL CHANGE AND THE RAILROADS

A long-range sociological look at the human aspects of the technological change sweeping the railroads.

p.16

High-speed car designs sought

Car builders are being asked to submit proposals for cars to be used in Northeast Corridor tests **p.9**

C&O finds a new way to cut track costs

Excavating and cleaning ballast is faster as well as cheaper with a new equipment combination **p.24**

1965 profit running 8% ahead of '64

The best third quarter in 10 years is boosting railroad earnings to a level higher than last year's **p.30**

The Action Page—How thrive under semi-socialism?

Equal treatment for all modes of the U.S. transport system is an urgent public necessity **p.40**

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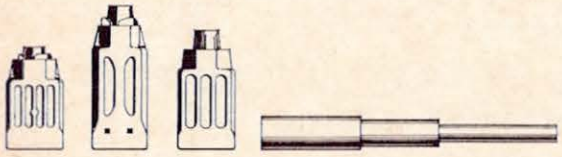

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SHORT AND SIGNIFICANT

Joint Board meets again —and BLF&E is there

The Brotherhood of Locomotive Firemen & Enginemen is now participating in the National Joint Board study of experience under the fireman-off arbitration award—but BLF&E Vice President J. L. Shattuck emphasizes that his organization thinks it's too late now to conduct the type of study recommended by the arbitration board. Shattuck made these other points at the first meeting he's attended out of three the NJB has held: (1) His participation is based on the "overwhelming public interest"; (2) the public interest demands that the parties "reach a peaceful and private settlement of the locomotive helper (firemen) dispute"; and (3) the carriers should "focus attention on collective bargaining as the only method to resolve the issue."

●

New Canadian passenger trains make runs

Travelers going between Montreal and Toronto last week had their choice of riding in grand style on either Canadian Pacific's or Canadian National's new fast trains. CN put into service its "Rapido," touted as the "fastest passenger train in North America," making the 335-mile run in four hours, 59 minutes, an average speed of 67 mph. CP launched its two dome-equipped streamliners—"The Royal York" from Montreal at 5 p.m. daily, and "Le Chateau Champlain" from Toronto at the same time—which make the runs between the cities in five hours, 45 minutes. CP's stainless steel trains have two lounges, a dining car and coffee shop and offer first class and thrift travel. The CN's "Rapido" has coaches and parlor cars on an all-reserved basis.

●

Piggyback loadings ride high again

A new all-time high for piggyback loadings in one week was set the week ending Oct. 23 when 22,865 cars were loaded. The new record supplant's the previous high of 22,727 cars loaded in the week ending Sept. 4.

●

PRR centralizes marketing activities

Pennsylvania Traffic Vice President Henry W. Large disclosed last week that the railroad had established a new market research organization "to centralize expanding activity in the fields of marketing, traffic research, and economic analysis." The new organization will function within the PRR system's traffic department. It will be headed by a general manager —market research (still to be named) and will be subdivided into areas covering commercial, rail-transportation, competitive-transportation, and traffic-trend research. The market research organization will parallel the existing pricing organization headed by a general manager, freight rates —both will report to Russell W. Talbot, who has been appointed to the new position of assistant vice president, marketing.

●

Freight-car fleet gets 65,759 new cars

Railroads added 65,759 new freight cars to the fleet during the 12 months ended Sept. 30—and retired 75,064 during the same period. For the 12 months ended Sept. 30, 1964, the comparable figures were 60,510 installed, and 90,217 sent to the scrap heap. On Oct. 1, the Class I railroad fleet of serviceable cars totaled 1,401,982, with an average carrying capacity of 59.27 tons. This compares with a fleet of 1,407,571 cars on Oct. 1, 1964, with an average carrying capacity of 57.88 tons.

MONDAY MORNING REPORT

Labor relations—who determines good, bad?

Whose basic responsibility is it, in the management end of the railroad industry, to see to it that good labor relations are created and maintained, that management and labor understand each other, that each treats the other fairly and honestly? Whose responsibility? Not that of the National Railway Labor Conference. Not that of railroad presidents. Not even that of railroad labor-relations officers. The primary responsibility—and in things like management-labor relations primary or initial contracts are vital—rests with each man who supervises other men.

PRR puts it clearly, directly, factually

Many railroads have tried in many ways to drive this home. Results have ranged from fairly good to pretty bad. But Pennsylvania—a road to which labor strife, historically, has been no stranger—is making a renewed (and excellent) effort to promote better labor relations out in the field, where trouble usually starts. PRR, as it happens, publishes a monthly newsletter for supervisory employees. It's called "The Personnel Manager," and it comes out of the road's labor relations and personnel department. Not long ago, PRR came up with a gem—four pages on grass-roots labor relations, with a clarity that sparkles and a factual approach that even a union officer would find flawless.

What a supervisor should —and shouldn't—do

PRR's list of do's and don'ts for supervisors sums it up: "(1) Don't evade the labor agreement. It was made in good faith and, although disagreements will occur, it is controlling; (2) In applying the agreement, do not make technical interpretations. Unless you have available to you all of the decisions and opinions that have been made by responsible officers of the company, by neutral referees or arbitrators on our railroad or other railroads, you may be wrong. Seek advice from the company's specialists; (3) Being a 'good guy' won't buy good labor relations. Respect will. If after you have listened and considered and still disagree, don't hesitate to say 'no'; (4) Make good labor relations a reality by practicing good human relations. Claim prevention is good labor relations; (5) When major changes are made that will affect the employees, their representatives like to know about them and it is usually wise to inform them in advance. If the changes are based on sound reasoning, you are most likely to get their support; (6) If, under the labor agreement, claims are presented to you, don't just answer them. Find out what the problem may be and look for ways to correct the situation that caused the claim; and (7) Always get the full facts before you. It will help you and others save many hours if the complaint or grievance is progressed."

On stopping trouble —before it starts

Through all of PRR's presentation to its supervisors runs one strong theme: The time to stop trouble is before it starts. There's one thing about labor problems in the railroad industry, and probably in any major industry: The higher up they have to go for settlement, the stickier the situation gets. A local griever or a local supervisor may make a mistake in handling a dispute. So it gets to the general chairman and the labor-relations officer, and each has a certain obligation to back up his own. Maybe, finally, there's a strike or the threat of one—either is damaging to all concerned. In most cases, the whole blow-up shouldn't have happened. For supervisors who read and act upon PRR's advice—and union representatives who do likewise—blow-ups should be few.

RAILWAY AGE WEEKLY

NOVEMBER 8, 1965

High-speed car designs sought

Some 50 cars to be used on Washington-New York run

New Haven test calls for 4-6 turbine-powered cars

Both demonstrations set to begin late next year

Preparations for the high-speed rail passenger service demonstration between Washington and New York gained momentum last week with the announcement that car builders have been asked to submit proposals within eight weeks.

Meanwhile, on the other end of the Northeast Corridor, proposals are being sought for the manufacture of gas turbine-powered equipment to be used in similar tests on the New Haven's Boston to Providence run. Designs for these cars (some 4 to 6 will be ordered) are expected within six weeks.

Action by the Department of Commerce in requesting proposals for the hardware to be used in the passenger tests comes just a month after President Johnson signed into law the High Speed Ground Transportation Research and Development Act. The Act calls for high-speed ground transportation studies throughout the nation, with the initial tests set for the Washington-New York-Boston area. Congress put up $18.2 million to finance the research program for the remainder of this fiscal year, with a total of $90 million expected to be spent on the studies over a three-year period.

● **Specifications going out.** The Pennsylvania, which will run the Washington-New York demonstration, is now mailing specifications to interested manufacturers. Plans call for building some 50 individually-powered, electrically-propelled cars capable of sustained speeds of 120 mph and top speed of 150 mph. The cars will be capable of rapid acceleration and deceleration to take advantage of stretches of road permitting higher speeds. Delivery of the test cars would be within 12 months after contracts have been signed.

To help get the rail tests under way as soon as possible, builders are being asked to advance proposals on four test cars—stripped down versions without inside passenger accommodations—within three weeks. Delivery would be in mid-1966.

Proposals on all of the rolling stock would be submitted to the Pennsylvania, but the Department of Commerce, which is putting up $9.6 million toward the tests, would have a say in evaluating the designs and awarding the contracts.

Proposals are expected to be submitted by the major car builders—Budd, St. Louis Car and Pullman-Standard—as well as other manufacturers interested in the tests. One new entry in the competition is the United Aircraft Corporate Systems Center, which recently unveiled a proposal for a high-speed, lightweight train designed along aerodynamic principles, and powered by a Pratt & Whitney aircraft-type turbine. A spokesman for United said the company plans to submit a proposal.

Specifications for the Pennsylvania electric cars are available for $25 a set from Louis T. Klauder & Associates, Philadelphia National Bank Building, Philadelphia 7, Pa. The test-car specifications can be obtained for $25 each from Donald Shea, Room 6518, Department of Commerce Building, Washington, D.C. The gas-turbine car specifications, also at $25 a set, can be obtained from Otis Roberts, Room 6526, Department of Commerce Building, Washington, D.C.

● **Timetable for tests.** Dr. Robert A. Nelson, director of Transportation Research for the Department of Commerce, and manager of the Northeast Corridor project, said the actual tests on the Pennsylvania and New Haven will begin near the end of 1966. Speeds at some points are expected to reach 125 mph. The 50 Pennsylvania demonstration cars would be fitted into the road's normal traffic, but service is planned for every hour thoughout the day and evening on the Washington to New York run, and probably more frequently between Philadelphia and New York. Travel time between Washington and New York is expected to be less than three hours, cutting nearly an hour off present schedules.

The coaches for the Pennsylvania tests will seat 70 to 80 persons, parlor cars less. The equipment will be air-conditioned, have public address systems, public telephones, smoke-removing vents above each seat, individual reading lights, and noise will be held to a low level. Station platforms will be raised to car floor level to eliminate steps, and there will be special baggage handling facilities.

"The project," says Dr. Nelson, "will test the usefulness for the immediate future of existing rail passenger facilities by providing the best service that can be squeezed out without making major changes in road and structure."

The tests are expected to provide a great deal of information on travel habits, such as the response of passengers to speed, fares, comfort and scheduling convenience.

● **Braking research going on.** To make the high-speed trains a reality, a number of related research projects are now being conducted, among them a key one in train operation—how to stop a super-speed train.

Investigations of the braking requirements for such services have been under way for some time in the laboratories of the Air Brake Division of Westinghouse Air Brake at Wilmerding, Pa. While the dynamometer on which these experiments are being per-

A microwave link by space creatures?

Henry Magnuski, Motorola's internationally recognized leader in microwave research, ponders the possibility that intelligent creatures in outer space, a thousand or so years ago, may have sent Earth some mysterious microwave signals. But he doesn't let it stop him from making a strong pitch on Motorola's microwave systems for the railway industry.

Recently, a segment of the scientific community has been knee-deep in confusion, if not in controversy, about CTA-21 and CTA-102. Those are the mysterious points in outer space which emit very strong and short microwave signals.

As of publication time, no one knows exactly what is causing these signals... but a lot of people have strong opinions. Some say planets; some say they are gaseous disturbances like other "radio" stars; some say they were sent by space-creatures of a super intelligence!

Don't laugh. Some well-respected astronomers take the "super-intelligence" theory quite seriously (but don't take that medieval "monster" I'm pictured with seriously). The Russians even laid claim to detecting an "intelligent" 100-day pattern to the signals. In my opinion they laid an egg and most British and American astronomers agree.

So, the controversy rages. Although I accept only the "gaseous disturbance" theory, I'll never be able to prove it, unfortunately. Why not? It's simply a matter of time and distance. Best estimates put CTA-21 and CTA-102 about 1,000 light-years away, so the microwaves our radio telescopes are picking up now were sent around 1,000 years ago. Thus, even if we could answer these signals today (and Earth doesn't have the power or technology yet), it would take another thousand years for our answers to arrive at the CTA's; and who is to say the "senders" will still be there?

Even if they did read us, it would take still another thousand years for any "intelligence" to answer us ... unless microwaves can be made to travel faster than the speed of light. Who has the time to wait? And another thing—if these creatures are so blasted intelligent, why didn't they send us a more readily decipherable signal in the first place?

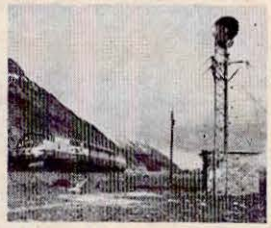
Maybe I'm skeptical simply because I don't like the idea of anyone being a thousand years ahead of Earth's technology. For now, however, let's concern ourselves with the day-to-day business of running a railroad ... a considerable challenge in itself ... but one to which Motorola microwave equipment is contributing mightily these days.

1660 MILES – 55 MICROWAVE SITES

Take, for example, the system we recently designed and installed for the Conestoga Company's communications and operational network serving, among others, the Kansas City Southern Lines. It's a fully-integrated system equipped with microwave and VHF radio to provide data transmission, teletype, centralized traffic control, dispatching, and telephone communications. Backbone of that part of the network serving the railroad is a 1660-mile, 55-site microwave system radiating from headquarters in Shreveport to general offices in Kansas City, Mo., and to terminals in Dallas, Port Arthur, and New Orleans.

Among the many functions this complex system performs are:

- Interconnection between IBM 1050 machines at 17 wayside microwave stations and IBM equipment in Kansas City and Shreveport. This data transmission network consists of 4 party-line circuits that extend the full length of the microwave system.



Motorola serves over 50% of the microwave needs of America's vast railroad network.

MR-50A solid state RF microwave equipment with the longest customer-proven reliability history in the railroad industry.

- A Centralized Traffic Control network (CTC) for controlling 33 passing tracks from the CTC control boards in Shreveport. Additionally, track-side CTC sites have intercom access to the main boards for maintenance crew and engine crew communications.
- A VHF dispatching network covering 72 wayside base stations.
- A telephone network that terminates in Shreveport, providing complete dial facilities between all stations in the system.

AND YET ANOTHER

For Atcheson, Topeka & Santa Fe Railway, Motorola designed and installed a 15-station microwave and multiplex system at the west end of the railroad's Los Angeles-to-Chicago line extending from Los Angeles, California to Winslow, Arizona. Later Motorola added 24 stations between Amarillo and Topeka. This system incorporates a unique filtering plan to meet circuit drops and to conserve the baseband spectrum.

NO APOLOGIES

Trying to communicate with space creatures may be a bit more glamorous than signaling a dispatcher in Winslow, but you'll hear no apologies from Motorola for putting R&D bucks on the line, so to speak. Maybe we just don't want to wait a few thousand years for the payoff.

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WATCHING WASHINGTON WITH WALTER TAFT

TAFT

• **INCENTIVE PER DIEM BILLS** are among the adjourned Congress' unfinished business of special interest to the railroad industry. These bills, on which the industry is divided, would give the ICC authority to include incentive factors in per diem rates for rental of freight cars. Their objective is to promote more buying and more efficient utilization of cars.

They got further this year than ever before in the nearly 20 years which they have been before Congress. One version passed the Senate (RA, July 12, p. 13) and another cleared the House Committee on Interstate and Foreign Commerce. This clearance came too late in the session to get the bill up for House consideration before the adjournment. But it did leave the proposed legislation well lined up for enactment next year. All it needs now is House passage, Senate-House agreement on a uniform version, and approval by President Johnson. Proponents regard the chances as "quite good."

EARLY 1966 FOLLOW-THROUGH on its favorable report is expected from the House Commerce Committee. The Committee's 1965 chairman—Representative Oren Harris (D.-Ark.)—said that Rules-Committee clearance will be sought promptly after the first of the year. Normal House procedure requires this. The Rules Committee is the traffic cop, controlling the flow of proposed legislation to the House calendar.

THE DETERMINATION of the Commerce Committee to get prompt action was pointed up by Harris' strategy in the closing days of the adjourned session. He then planned to bypass the Rules Committee and get House consideration of the bill by unanimous consent. He abandoned the plan on being advised that there would be objection. This did not surprise Harris, he said, adding: "I regret it very sincerely."

THE COMMERCE COMMITTEE CHAIRMAN went on to recall that the ICC and railroad proponents have been advocating the proposed legislation since the mid-forties. The campaign got under way when the courts thwarted a Commission undertaking to use its present car-service powers to prescribe a penalty per diem rate. "The railroad industry may be split as to whether or not any legislative change is desirable, but it is crystal clear in my mind that, if we are to get any improvement, we will have to clarify the powers of the Commission," Harris also said.

THE HOUSE VERSION would not permit the Commission to exercise its new authority until Sept. 1, 1966. This provision was included to give the railroad industry "one more opportunity to come to terms with itself," Harris explained.

MODIFICATION of railroad attitudes might solve the car-shortage problem "more promptly and efficiently" than exercise by the Commission of the proposed new powers, he added. Nevertheless, he wants the legislation to "encourage the railroads to cooperate." If it didn't, it would put the Commission in a position "to take steps to cure this problem."

OTHER PROVISIONS of the House version which differ from the Senate version include the approach by types of car instead the total-fleet approach. As Harris interprets this, it would avoid the necessity for a review of "every type of car which exists." The Commission "would be precluded from making any incentive element applicable to any type of car, the supply of which it finds adequate."

formed has been in operation for almost seven years, only recently has it been set up to simulate the tread braking of a 139,000-pound coach on a 2-hour 42-minute 40-second run between New York and Washington. It was such a demonstration that representatives of the Department of Commerce, the Pennsylvania and car-builders recently attended.

Stops and slowdowns from speeds up to 150 mph were made—there were six stops and 44 speed restrictions on the simulated schedule. Retardation was maintained at a rate of 1 mph per second, a requirement that represents a braking performance of 2,540 hp per car under the 150-mph conditions of the test.

The AAR Class BR passenger-car wheel mounted on the dynamometer shaft was braked with a single flanged-type Cobra composition shoe of the type presently used on Chicago & Northwestern and New York Central suburban cars. The test, reported Wabco engineers, showed this composition shoe to be capable of operating approximately 7½ round trips between New York and Washington. No dangerous wheel temperatures were developed.

• **Practical deceleration.** Wabco points out that its choice of brake shoe force had taken into account rolling resistance and wind resistance in achieving the 1 mphps deceleration, noting that "this is a practical rate for high-speed train operation which will not exceed the available adhesion limit or cause wheel slippage or sliding at lower speeds."

The 150-mph top speed is one which a proposed "pendulum suspension" car of United Aircraft design is claimed to be capable of achieving. Current planning for actual demonstration runs with more conventional cars will probably see top speeds of only 125 mph. "Should the maximum speed of the proposed schedule be reduced from 150 mph to 125 mph," says a Wabco engineer, "the entire schedule would be extended only approximately 3 minutes."

• **No major problems.** "High speed train operation will not create any major problems," concludes W. B. Kirk, Wabco chief engineer. "Today the technology exists for creating superspeed rail operation of up to 150 mph. Diesel engines and electric motors exist that, with minor modification, can propel trains at these high speeds. New materials have allowed more efficient designs for rolling stock. Riding qualities have been improved with the development of more rigid trucks . . . The recent development of air springs provides a soft spring assembly with a constant spring height over a wide loading range." ■

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JOHN W. SMITH, PRESIDENT
Seaboard Air Line Railroad Company

"Railway Age is an unfailing source of timely and authentic news about the railroad industry. Especially valuable for the busy reader is the summation of each article at the outset, providing highlights which allow the reader to determine quickly the immediate interest the story may hold for him."

John W. Smith

Rome to build new subway

Rome, Italy had to wait 17 years between the beginning of construction and the opening date of its first urban transit line. As if to make up for lost time, the city is now planning to at least double the present size of the system—seven miles—and create a four-line network.

● **A war casualty.** Digging began on the original line in 1938, with the idea of linking the central railway station with the grounds southwest of the city, where the 1942 World Exposition was due to be held. The show was a casualty of the war, and although 50% of the structural work on the Metro was done, all construction was halted.

After the war, lack of dense population in the southwest suburbs discouraged pressing the work on the metro for a time, but the line as it now stands was completed in 1955.

From Stazione Termini to the fair grounds, there are ten stations. The line is standard gauge and double-tracked. Approximately half its length is in tunnel, both in the city center and at the two fair-grounds stations, but in less built-up areas it runs at the surface.

Overhead current is 1500V dc, and rolling stock consists of 40 electric cars (delivered in 1954-56), each of which has a passenger-seating capacity of 48, with 195 standees. The cars run in sets of up to three, but introduction of semi-automatic train controls (train-stop and dead-man controls) is permitting operation of four-car sets. Another eight cars are used for the Ostia suburban railway, which has operating privileges part of the way.

● **More to come.** In view of Rome's growing population (2.2 million in the 1961 Census), STEFER, the state-financed operating authority, has plans for drastically extending the system. What is now the single stem will become Line B of three lines crossing in the city center. Line D, the fourth and final one to be built, will be a circumferential link with the others outside the core area. Beyond the basic plan, branches are due to be added to all lines at a future date.

Construction is now in progress on Line A, linking the Stazione Termini with Osteria del Curato south of the city. ■

RAILROADING AFTER HOURS WITH JIM LYNE

LYNE

THE INCREDIBLE JENNEYS—The Jenney oil people in Boston have for several years carried on an intermittent advertising campaign in favor of strengthening rapid transit by rail in the Boston area. One of the planks in their platform has been the retention of the Old Colony Railroad's tracks (which the New Haven has abandoned), so they could be used for rail transit.

So, recently, the Jenneys did some more advertising in local newspapers—to express their satisfaction at the taking over of the Old Colony's right-of-way by the Massachusetts Bay Transit Authority (MBTA).

Such a campaign in the broad public interest—by a company which derives its income from selling fuel for highway transportation—is not just unusual. It is unique. As company president Robert M. Jenney said, "It was incredible that a gasoline company was promoting mass transportation instead of more traffic to increase gas consumption."

It takes courage for a company to take a public stand on such a controversial issue as this. But it is also possible that, by helping to make Boston a city that is easy to move around in, the company may increase its local gasoline sales. It would not be the first time that primary concern for the public interest turned out, also, to be sound business policy.

UNLEARNING IS IMPORTANT TOO—In the training of apprentices and other employees, there is often "unlearning" to be done, as well as learning. This point was made in a paper recently by Jack Brannan, chief mechanical officer of the Long Island.

"I can remember many times," he said, "when employees had ideas and opinions on how railroad equipment and mechanisms functioned that were absolutely erroneous. Before we could get them to do the job right we had to get them to forget the wrong ways of doing it.

"The mass of technical data and information available to modern man is a thousand times what it was a hundred years ago. In the next 50 years it will undoubtedly increase 10,000 times over what we know today. Are we ready to handle this? I don't think we can apply the time-proven and traditional concepts of training to the situation and hope to keep up with what is going to be thrust upon us. We must find a way to speed up the training of our people."

JB is inclined to believe that a graduate of a vocational high school, with two years of intensive training on the job, will be in a position to "pick up the tools and be a mechanic." Spending four years "treading water" in regular apprenticeship, he feels, "produces impatience and stifles incentive."

ENLISTING THE FANS—On the question raised here (Oct. 4, p. 27) as to whether railroad "fans" could be enlisted to support railroads in their legitimate objectives (e.g., more equitable regulation and taxation), Trainmaster Donald Robinson of the Green Mountain R.R. believes it would be a hard job. DR is an ardent fan, on the side, but he believes many if not most fans have specific interests which differ from those of other buffs. He believes railroads should prepare their own program and invite the cooperation of such fans as agree. Some would go along—some not, in his opinion. But a buff whose interest is primarily in historic locomotives will not necessarily be equally concerned, say, with present-day regulation.

Tom Taber of Madison, N.J.—for many years one of the nation's most ardent and well informed enthusiasts for railroad transportation—believes the fans are more highly regarded by railway people in Britain than they are on this side of the Atlantic.

"In Great Britain," he says, "it is considered normal for one to like steam locomotives, trains and railroading. As a matter of fact, one who does not like them is looked upon as being rather odd. Over here the opposite is true. Our railroads just don't want to be bothered by fans."

I think TT is somewhat overpessimistic. I know plenty of full-time railroaders (not forgetting the supply side either) who are real railroad enthusiasts seven days a week. And not all of them belong to fan organizations either. Fan is a broad term—some to whom it is applied being, not enthusiasts for the industry as a whole, but only for parts of it. This area of railroad public relations could stand wider and deeper thinking than it has yet received—on the part of fans themselves, as well as payroll railroaders.

A SOCIOLOGIST'S VIEW OF

Technological change and the railroads

- How must rail managements adjust?
- What's ahead for the brotherhoods?
- Who stands to gain—and lose?

Dr. Fred Cottrell, professor of government and chairman of the Miami University (Oxford, Ohio) Department of Sociology and Anthropology, has impressive credentials for taking a long range look at the human aspects of the technological changes sweeping the railroad industry. Born into a railroad family, Dr. Cottrell went to work for the Union Pacific at 14. He held jobs as roundhouse laborer, machinist apprentice, hostler's helper, trainmaster's clerk, carpenter, lineman and B&B foreman before he completed his graduate studies, earning M.A. and Ph.D. degrees at Stanford. Author of "The Railroader" (a study of what a man's occupation does to his personality) published by Stanford University Press, and "Enemy and Society," by McGraw-Hill, Dr. Cottrell also has written extensively on social gerontology, aging and leisure, policy and politics for the aging. Acting director of the Scripps Foundation for Research in Population Problems, he was co-winner in 1953 of the Research for Peace Award given by the Oslo Institute for Social Research. Here Dr. Cottrell discusses some sociological aspects of change in the railroad industry with Railway Age Western Editor John Mitros and Senior Editor Gus Welty. His views are, of course, his own, and do not necessarily reflect those of Railway Age.

Q. Dr. Cottrell, what do rail industry employment prospects look like to you?

A. Speculative, I think. Prospects, to some degree, depend on what the industry's new technology will be. In part, it's fairly clear. Development of new forms of motive power, for instance, will be less significant than techniques for allocating equipment. Technology is pretty well developed. We know what kind of people you are going to need. But to move from the kind of people that railroads have used in the past and have recruited in the past and have trained in the past to the kind of people that they will need isn't going to be a matter of simply deciding that this is what the technology requires. In between, you've got a whole revolution to think through. Is this the organization that you need? How attractive is this industry, contrasted with other industries, to the kind of people that you have to have? How are you going to dispose of the people that you've got who cannot be retrained? What is it going to cost you? What kind of labor organizations will emerge?

Everyone of these questions involves a major kind of social change.

'Those who most effectively use the advanced technology and science can underprice you and bid people away from you'

Future technology is always hovering in the wings as a standard against which you have to operate. The advantage is always there for anybody who wants to press you. The profit is always there for the guy who undertakes to destroy. The person who tries to defend the old is always operating against this differential between it and the new technology. It's a kind of technological determinism if you please. But the fact is, human beings choose between techniques and it is they who choose, ultimately, who is on top.

Q. This technological determinism—does it have any sort of inevitable direction?

A. Yes. Say that somebody has broken through and established communication by beam. You can insist on your wires as long as you please, but other people have chosen the superior technology. You can work as long as you want and sacrifice as much as you please and you will still be unable to compete. This isn't imposed by technology. It is a choice made by human beings between techniques.

But, what are we trying to say? Will there always be railroads? My answer is yes. But are we trying to say "Will there always be craft unions?" Or "Will there always be a B&O?" Or "Will there always be a New York Central?" Or "Will there always be a railroad with the managerial structure that we know, or union structures as we know them?" Obviously not. Where the union is strong enough to prevent change within the railroad, and an alternative form of transportation or another raiload makes use of superior technology, he beats the socks off you. You either accept this and adjust your social organization to it or you are confronted by the fact that you are not any longer in business.

Q. In other words, the technology will leak out one way or another?

A. Yes, and just because human beings are choosing. Technology does not do the forcing. Human beings have chosen between alternative forms of transportation and between alternative forms of organization. Those who most effectively use the advanced technology and science are put in a position where they can underprice you, bid people away from you.

In a paper I wrote on energy and society, I reduced this to energy differentials—but it doesn't have to be measured this way. Nevertheless, you can use energy to reward but it can also be used to seduce and it can be used to corrupt and it can be used to coerce. Where you get the differential, then you can operate in all these directions.

The humanitarian says the human being is here and that he's got a 70-year period of time. The fact that in 20 years you can revolutionize the industry so that his skills are useless is not to him the essential proposition. That the human being shouldn't be made useless is a good humanitarian argument. The trouble is, other humanitarians will transfer their business to the guy who disregards the humanitarian argument.

Q. Then, this technological determinism is going to result in some changes in traditional union and carrier organizations?

A. Yes, but we don't know exactly what the changes are. As a sociologist, you run up against the fact that we don't know anything about the process of shrinking systems. We know something about the way that you create new statuses but we don't know what happens when you begin to destroy old systems with their statuses and roles. We do know that they will have corresponding effects upon the personalities that are involved. We take it for granted that you are going to have a lot of wreckage, spoilage. If you go slowly enough, you just say the old man will be out of the way and the young man will learn something new. But if you go so rapidly that you do this a couple of times while he is alive, you have so much spoilage on your hands that you can't afford it—unless you simply accept the idea that you are going to have a large number of people who are parasites on the system.

What management says about the fireman in substance is this: "It's worth $10,000 or $15,000 to me to get rid of you. I can afford to pay you just to get you out of my hair." This kind of thing we have never had before. We have never been able to change the technology rapidly enough to make it pay.

The differential between a low-energy system and a higher one is enormous. What we are up against, then, is that you have different rates of capital accumulation and thus different rates of capacity to adopt the new technology, and these are the more compelling forces that determine whether or not this union can survive or this form of management can survive. But don't support the idea that this is inherent in the nature of things. Rather, say that human beings will use things that have advantages over other things in securing the values that they have been taught to seek. But they modify their values in the process.

Q. There is a rather interesting point. Will there be more pressure for labor in a situation where capital accretion isn't rapid enough?

A. Yes. The American worker, if he's working, can achieve what a New Zealand or an English worker can't even hope for. Largely, he is insisting—in his personal, off-the-job dealings—that you use advanced technology. As soon as he goes into the market for an automobile he wants the cheapest automobile he can buy. He is not insisting upon retaining an organization in the automobile industry which will preserve the union. He is insisting—in effect—that somebody will go in with a broad axe and cut right straight through the whole existing social structure.

Q. This is a tragic dilemma?

A. This, of course, is what we are caught up in. It's a spiral that mounts by what it feeds upon. For example, they said you can't get along without the braceros, the Mexican field laborers. Well, at $1.10 an hour you can't buy a machine to replace them. But at $1.40 an hour you will go out and invent a machine with which you will lower the costs of picking tomatoes to the place where maybe you can't afford to hire a man to pick tomatoes by hand even at two bits an hour. So the blocks that labor sets up at various points to prevent technological change very often give rise to alternatives which are much, much cheaper than the existing level on which labor operates. Now a labor chief may shoot at the idea that if his union organizes effectively enough there will be no alternative available to management because the union will control his access to all workers—and this means that increasing productivity will go in

Successful managers must be aware of a range of variables that the

to go into a system if neither of these count for very much.

So management is confronted by the fact that they are going to be receiving an entirely different kind of person if they retain the system of recruitment and training most of them have used in the past. People with much less potential may be the result.

Q. All of this in a time of rising demand for more skills?

A. That's right. They fished in these pools in the past—for at least operating management and very often for even the top management—and since then the big fish, the kind of candidate that they were able to find there in the past, has been diverted off through the academic world. Things are going to get tough. Management that is willing to recruit in universities will get a kind of manpower entirely different from that of the management that isn't willing.

In talking with workers now, I find some men who were in school when I was, say "I wish I'd never heard of the railroad." These are men with 25 to 40 years of seniority. Instead of regarding this as an achievement, some of them find the whole thing to be ashes. It's a dead world from their point of view. They would never encourage a youngster to go in as they did. I haven't found a railroad worker who is encouraging his son to go into railroading. This is not immediately significant to railroad management. Many of them are not recruiting anyway, so they don't care. But if they think that later they are going to find leadership—labor leadership and management leadership—in this same pool they are mistaken. They will see that if they are attracting a deteriorating quality of manpower they will be forced either to accept a deteriorating position or to go clear outside the industry to find their managers.

Q. The technology that seems to be winning out on the railroads in many cases points toward even more intense supervision?

A. Yes. As you increase the length of the trains and the value of the equipment you increase responsibility. There are some locomotive engineers who have at least as much responsibility for property as the pilot of an airplane. The division superintendent may be a man with many, many millions of dollars worth of property under his control. Either man, producing at something less than optimum, is a tremendously expensive proposition.

This leads to two needs. One is the social need to remove impedimenta, to make it possible for the railroads to meet challenges, to make effective use of potential technological advances. The other need is for the people who control entry into the managerial level to recognize that the challenge of the new technology requires a new kind of recruiting process and a different kind of educational process for the manager who's going to be successful. He—the successful manager—must be aware of a tremendous range of variables that the old operating man didn't need to know about at all. If the operating man doesn't ask for things, the man who is at the top who is not technologically equipped to know what he needs, is not going to provide it. If this manager is a man who doesn't read, if he spends all of his time riding a caboose or a locomotive to see that he's got an indicator working, or any of the things that a great many supervisors seem to spend their time on—if this is what he does instead of reading and investigating the potential of new technology, then quite obviously he robs the system at every level.

I was talking to innovators at a major railroad about the introduction of new devices and the new techniques that they have developed. They feel that they are regarded as intruders and threats. They often find it difficult to get even a hearing from the people who will have to put this equipment into operation. Those people oppose it, do not take good care of it and are very happy when they prove that it isn't an advance.

Sociologically this is to be expected. It is quite obvious that innovations are threats. There is little chance that workers—or even managers—will benefit from their adoption. If you want somebody who is receptive to innovation you are going to have to recruit him from a different kind of pool, with a different attitude toward his job.

Q. Or else find a way to motivate him?

A. Yes. His whole frame of living, his whole code is threatened by innovation. On the other hand, he is seldom rewarded for successful innovation. So far much of the saving involved in success has been siphoned off by other parties. The individual has got to learn how to handle this new system but the increased productivity isn't going to go to him. He is, so far, seldom given a bonus. He'll very seldom be made a profit sharer. Few of the devices used to motivate management in many other industries have been used to motivate operating managers in railroads.

About the only thing that the carriers have traditionally used is the nebulous hope of recognition and ultimate promotion. No one is going to try to be more effective if the total result to him is likely to be that he will lose his job. We can assume that workers feel this way. But when part of management is in the same situation, then quite obviously the effects on management may very well be as bad as the effects on labor.

Q. What are the ways out?

A. As far as management is concerned, I think that the essential problem is to get some kind of freedom of action at the outset. A second problem is that they have practically got to set up a new and more competitive form of organization.

With a merger you might succeed in doing it. It would be of tremendous value to do research and see what survives in a merger. What we might find, however, is that the old people with strong, established power derived from seniority rights and what-not survive, and that the people that you need to make the thing work go down the drain. I can't be sure this is happening now, but this has, at times, been the downfall of revolutions.

Q. I think what you are suggesting is that much recent railroad technological progress as well as sociological changes within the industry have come about more for negative than for positive reasons.

A. Yes. I would say that in almost every case what has happened is a reaction to both internal and external competition. The cost of technology and technique in use became prohibitive, and the kind of situation they faced was one where there was a tremendous differential between it and what was available from outside. Usually it was a guy from outside who saw the opportunity to make money from a railroad and he practically shoved it down their throats.

Q. It's been said that the supply in-

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larger measure to labor than it otherwise would.

If we are saying then that technology is inexorable because of any materialistic dialectic—no. But from the kind of choices that human beings in a secular society make, yes, because science continually offers alternatives where you substitute extremely cheap energy from coal and oil and falling water for energy from human beings. You reduce human time—time as a measure of cost is reduced. You continuously do this as long as resources are available and we have them here now. There are a lot of places in the world where they don't. But I don't see them as limits on our system in the near future.

My own feeling is that railroads are now sloughing off a lot of the sociological barriers to change. They are beginning to have controls so reduced that the opportunity for management is nearly as good as that we find in some of the other transportation modes. The opportunity for profit grows.

In the meantime, the concentration of populations in urban areas means that some other forms of transportation become more and more obsolete. You can, for example, hardly drive an auto in Manhattan. As you get a high degree of aggregation of population—and sociologists are sure that this will happen—the advantage goes back toward mass transportation. Management now in some situations is in a position to substitute superior technology for inferior labor. So the bargaining capacity of labor falls, relative to management's capacity.

Labor leadership—if it looks at the direction in which technology and management are going—has to organize so that, as management responds to technological imperatives, it can meet management on something like equal ground.

Q. The drift has to be toward an industrial type of unionism?

A. Yes. I don't see any escape from this trend.

Q. Both the ops and the non-ops?

A. Yes. On both sides. For instance, if a man is a good carman, he's got to know something about refrigeration. He has to know something about heating. He's got to know something about electricity. He has to know something about air. This doesn't fit any craft union position at all. The more you try to defend it, the more certain it is that you all go down. You cannot afford to have a special, skilled carman, and an electrician and a steam man or an air man at every stop. So the very nature of the organization has the effect of forcing management into the adoption of other means of adjustment.

Q. We have these changes coming very rapidly?

A. Railroads are still technologically inefficient. You can already see, outside the railroads, the technology they are going to have to adopt. It's just a matter of somebody putting it to work on the railroad. Now if railroads were to become pioneers and if railroads were going to invent, then what might happen would be more questionable. We don't have to wonder about a 150-mph train. It's already here. We don't have to wonder about data procesing. We don't have to wonder about automation. The technology is around us. It is just the social organization of the industry that effectively slows down technological advances. If we just look at the most advanced railroads, we can see something about what the others are going to have to become. But nowhere is there anything that you can look at and say "Here is the standard railroad as she will be 10 years from now." However, all of these bits and pieces do suggest the vast areas that haven't yet even begun to show.

The difference between the competent or effective management in utilizing this technology and the incompetent is enormous. It stands out like a sore thumb.

Q. Will this gap get smaller?

A. It will grow. Managements that are far-sighted and that are looking at what is happening in research and development in areas applicable to railroad technology—their level of productivity will rise much more rapidly than that of railroads that don't look. The good are bound to swallow up the bad.

Q. This raises an interesting point. Are ineffectively run railroads helped somewhat more than effectively run carriers by national agreements?

A. Of course. The preservation of the weak is a part of the whole aim of the industry's social organizations. Seniority protects the less efficient against the more efficient worker, but this does not begin to compare with the agreements that allow a management of a railroad to stay in business by using the new equipment and new inventions developed by a competitor. Keeping foreign equipment on a road at far less than its true rental value and preserving the privilege through the Interstate Commerce Commission or through the conference agreements of the managements themselves—that's one way the weak stay alive.

Q. Is there any way in which the present work force benefits from technological dislocation?

A. What is happening to railroads is what happened to many other early innovators. Groups with a capacity to divert from the enterprise a large portion of the gains in the form of taxation, in the form of specialized union agreements, in the form of preferential stocks handed out as bonuses and what not, did so. Then you get stuck with that claim. It is considered legitimate. You operate under it.

A very few of the old skills on the railroad probably can function and maintain a monopoly and divert from the new technology proportionately as much as they did from the old. But most of the skilled groups in labor are unable to do so because of the capaci-

'There is no escape from the trend to industrial unionism'

ty of management to substitute inputs of equipment and service from groups outside the railroad.

Q. Is the take-out that various groups traditionally have gotten from the entire industry justified in view of today's different inputs?

A. At one time many industries and many governmental units had no high energy technology to latch onto other than railroads. The only way they could effectively claim on increased productivity was to claim on the railroad.

Now, over a period of time, because of the superior political position of the trucking industry for example, those groups have been able to divert from railroad productivity to build their own. The ability of these other groups to divert from the railroads a great portion of the gains from technology and not leave them subject to the control of the railroads is the essential problem.

Everybody wants to take out and nobody wants to put in. If they weren't such a tremendously superior technique of transportation, railroads would never have been able to stand it and these groups would have died and been replaced. Take for instance the Key ferry system in San Francisco. It was allowed to die. When it died the franchise values went and all the loans outstanding and the bonds went and the goodwill went. All the payments for value of franchise went and all of the labor organizations and the imbedded rights of workers to claim on future productivity went. So when you build the new transit system you don't have that burden.

Technological advance is considerable but technological advance doesn't begin to be as rewarding to the railroads as the disposal of sociological impediments would be. The constant emphasis, in my mind, must be on realizing the degree to which change is sociological. We've already burdened this industry with deterrents. As a consequence, many who are bright will go someplace else, where they can take the full advantage of the technology for themselves instead of sticking around a railroad where the gains they make may already be claimed in advance by somebody else.

Q. These claims reduce the industry's profit potential?

A. They do so long as you are unable to dispose of them—like buying people out. Take, for instance, the shipping industry on the West Coast. They just decided to buy out these claims of labor and pay them off and dispose of them—so as to be able to design a ship in terms of what the size of the crew and the size of the cargo should be to use modern techniques efficiently.

Q. Can you buy out redundant management?

A. Well this, of course, is the thing you can't do. In England, [Dr. Richard] Beeching [former chairman of British Railways] tried to dispose of these claims without paying for them. And he fell. Many railroad managements have tried to do this. You have the alternative of taking the time to do it in a humanitarian manner—that is, to wait until people die, until they resign, or until they retire. And you pay the consequence for loss of time. On the other hand, if your technological advance is very rapid and you have a young work force, this can be more costly than to simply fund your obligations, to older workers, turn them over to the individual and let him utilize the funds to find an alternative.

In the case of railroads you have so many groups that expect to be subsisized by railroads—local school systems, farmers, the military and other branches of government—that to try to buy them all out is impossible. Nevertheless as the technological differential grows, you get more and more opportunity to move. If technology changes from year to year you get tremendous savings in costs and these can be devoted to one thing and then another that needs doing. Eventually you make the jump. When it does come, of course, this means the wreckage of a whole series of social arrangements.

Q. Sooner or later the old system goes?

A. Yes, but this might be 2,000 years later.

Q. Or possibly much less than that?

A. Yes, it might be 10 years or it might be five.

Q. Many people think the most seriously affected group of railroad employees may very well be middle managers and higher supervisory employees?

A. Well, these groups used to advise top management and were very important. Nowadays you can arrive at judgments not based on accumulated experience of years but on the data that is available because of computers. Where the human mind, which once relied on accumulated experience, is fixed in habit and particularly when it's identified with a particular form of organization —that prevents it from seeing alternatives that the computer in the hands of creative management may reveal. It is obvious that just as a large part of the local labor force has gone, so also a large part of the local officialdom has gone.

The other side of this is how you recruit under those circumstances. Who do you get? What you have done is to move into an entirely different labor market from the market in which you used to find people. Desirable youngsters used to live in small towns. Their alternative to railroading was to farm 20 acres or to go to work in a tobacco field or a cotton gin or a grain elevator that might operate only three weeks out of the year, or something of this sort. The result? The advantage for railroad labor was very high.

Railroad operations are concentrated now in centers where the worker has the opportunity to go into other forms of industry and in places where there is advanced technology, places that have advantages over the railroads in part because they are free to adopt new managerial techniques. As a result, you are getting a quite different kind of person recruited into the railroads nowadays.

Another thing—it used to be that a great many bright and resourceful and highly motivated youngsters had no opportunity to go into high school and college. There are not so many youngsters of this character around anymore who find it impossible to climb the ladder by way of academic success. The railroad system blocks them off because seniority is frequently more significant than any other factor in the advance you make. The youngsters who want to go up more rapidly because they have motivation or ability refuse

Successful managers must be aware of a range of variables that the

to go into a system if neither of these count for very much.

So management is confronted by the fact that they are going to be receiving an entirely different kind of person if they retain the system of recruitment and training most of them have used in the past. People with much less potential may be the result.

Q. All of this in a time of rising demand for more skills?

A. That's right. They fished in these pools in the past—for at least operating management and very often for even the top management—and since then the big fish, the kind of candidate that they were able to find there in the past, has been diverted off through the academic world. Things are going to get tough. Management that is willing to recruit in universities will get a kind of manpower entirely different from that of the management that isn't willing.

In talking with workers now, I find some men who were in school when I was, say "I wish I'd never heard of the railroad." These are men with 25 to 40 years of seniority. Instead of regarding this as an achievement, some of them find the whole thing to be ashes. It's a dead world from their point of view. They would never encourage a youngster to go in as they did. I haven't found a railroad worker who is encouraging his son to go into railroading. This is not immediately significant to railroad management. Many of them are not recruiting anyway, so they don't care. But if they think that later they are going to find leadership—labor leadership and management leadership—in this same pool they are mistaken. They will see that if they are attracting a deteriorating quality of manpower they will be forced either to accept a deteriorating position or to go clear outside the industry to find their managers.

Q. The technology that seems to be winning out on the railroads in many cases points toward even more intense supervision?

A. Yes. As you increase the length of the trains and the value of the equipment you increase responsibility. There are some locomotive engineers who have at least as much responsibility for property as the pilot of an airplane. The division superintendent may be a man with many, many millions of dollars worth of property under his control. Either man, producing at something less than optimum, is a tremendously expensive proposition.

This leads to two needs. One is the social need to remove impedimenta, to make it possible for the railroads to meet challenges, to make effective use of potential technological advances. The other need is for the people who control entry into the managerial level to recognize that the challenge of the new technology requires a new kind of recruiting process and a different kind of educational process for the manager who's going to be successful. He—the successful manager—must be aware of a tremendous range of variables that the old operating man didn't need to know about at all. If the operating man doesn't ask for things, the man who is at the top who is not technologically equipped to know what he needs, is not going to provide it. If this manager is a man who doesn't read, if he spends all of his time riding a caboose or a locomotive to see that he's got an indicator working, or any of the things that a great many supervisors seem to spend their time on—if this is what he does instead of reading and investigating the potential of new technology, then quite obviously he robs the system at every level.

I was talking to innovators at a major railroad about the introduction of new devices and the new techniques that they have developed. They feel that they are regarded as intruders and threats. They often find it difficult to get even a hearing from the people who will have to put this equipment into operation. Those people oppose it, do not take good care of it and are very happy when they prove that it isn't an advance.

Sociologically this is to be expected. It is quite obvious that innovations are threats. There is little chance that workers—or even managers—will benefit from their adoption. If you want somebody who is receptive to innovation you are going to have to recruit him from a different kind of pool, with a different attitude toward his job.

Q. Or else find a way to motivate him?

A. Yes. His whole frame of living, his whole code is threatened by innovation. On the other hand, he is seldom rewarded for successful innovation. So far much of the saving involved in success has been siphoned off by other parties. The individual has got to learn how to handle this new system but the increased productivity isn't going to go to him. He is, so far, seldom given a bonus. He'll very seldom be made a profit sharer. Few of the devices used to motivate management in many other industries have been used to motivate operating managers in railroads.

About the only thing that the carriers have traditionally used is the nebulous hope of recognition and ultimate promotion. No one is going to try to be more effective if the total result to him is likely to be that he will lose his job. We can assume that workers feel this way. But when part of management is in the same situation, then quite obviously the effects on management may very well be as bad as the effects on labor.

Q. What are the ways out?

A. As far as management is concerned, I think that the essential problem is to get some kind of freedom of action at the outset. A second problem is that they have practically got to set up a new and more competitive form of organization.

With a merger you might succeed in doing it. It would be of tremendous value to do research and see what survives in a merger. What we might find, however, is that the old people with strong, established power derived from seniority rights and what-not survive, and that the people that you need to make the thing work go down the drain. I can't be sure this is happening now, but this has, at times, been the downfall of revolutions.

Q. I think what you are suggesting is that much recent railroad technological progress as well as sociological changes within the industry have come about more for negative than for positive reasons.

A. Yes. I would say that in almost every case what has happened is a reaction to both internal and external competition. The cost of technology and technique in use became prohibitive, and the kind of situation they faced was one where there was a tremendous differential between it and what was available from outside. Usually it was a guy from outside who saw the opportunity to make money from a railroad and he practically shoved it down their throats.

Q. It's been said that the supply in-

old operating man didn't need to know about at all'

dustry, and most particularly dieselization after the war, probably saved the industry from extinction.

A. I don't think they saved it from extinction, but they saved it from revolution.

Q. In your view, perhaps the diesel revolution was something that may merely have delayed the real revolution?

A. Yes. From my point of view as a person, the slower change has had some humanitarian influences that were worth a great deal. I am just not able to say that anytime you can prove that a man has become obsolescent you ought to cast him into an ash can. Many of the things that I have been talking about I have not described either with the idea that I condemn them or that I approve. I have been describing them.

Q. You earlier said that there will be grave changes ahead, possibly disaster, for the organizations that represent the industry's contract workers. What kind of action should union leaders be taking to head this off, to restructure the organizations so that they can serve the needs of men who will be working in the industry when the new kind of railroad is here?

A. Here again you are raising a question about values of sets of people. I have been working in gerontology and I am aware of the claims and the rights and the powers of older people and the persistence of the system under which they learned to live. That is often their greatest asset. Take the conductors as an example. Most of them are older men. They are going to live out their lives. They've got vested interests in their organization. Its destruction would be unmitigated disaster for them, no matter what replaced it.

So a leader asks himself, what can I do? He quite honestly would have to say, "after me, the deluge—but right now, we get ours."

Sociologically, we say that organizations replace one another all the time. Is it better that we have something that retains its identity and slowly changes into something else? Or is it better that you have something that disappears and something else that replaces its function? I don't pretend to know what is better. For example, somebody is going to have to serve the young maintenance-of-way men, somebody is going to serve the young brakemen. Whoever does is going to create a different kind of organization. That organization is going to be struggling for advantage with management. The agreements now in effect protect the older groups. Managements can play ball with them. One of these days they all are going to be at the end of the line. By that time, the question will be how to deal with what has grown up in the void.

Q. In other words, the older groups, while they have stronger claims, still have sharply definable claims?

A. And the claims are terminable, you see.

Q. The younger men's claims are much too expensive?

A. That's right. From management's point of view, this older group is going to phase out. At what point do you begin to disregard these claims in order to honor another set of claims? Well, I have been working on the politics of aging and trying to examine the effectiveness with which older people are organizing politically to establish their claims. Increased railroad retirement taxes, increased social security taxes are a claim of the old upon the young. In the interest of the future of the young, perhaps, but nevertheless immediately a claim of the old upon the young. When the union leader is confronted with the fact that his is an obsolescent organization but that his members are dependent upon it, he is almost honor bound to say I will defend their interest until their death. And railroad management seeing that this is going to be a phase, can, at some point, say we can better afford to buy them out, honor all their claims and recognize the claims of another generation.

This is very difficult to do. For instance, for [H.E.] Gilbert [president, BLF&E] who I am sure believes otherwise, to accept the assertion that there is no longer a function for the firemen is impossible. He's got to go on defending the proposition that there is a function for firemen. On the other hand, someday all the present engineers will be dead. Engineers have got to be preparing somebody to take their place. Who is it going to be? How is this guy going to enter the trade? What is going to be the process by which he secures his rights? This is a great opportunity for creative imagination on the part of management, and of labor leaders.

Q. If they get into the breach?

A. Exactly. It is a great opportunity for management, but I see no evidence that management is looking upon this as an opportunity to find new sources of recruitment or to decide what it is that the man who is in the cab should know or whether or not there is going to continue to be a head brakeman and that he is going to be trained to take on these functions. There is general failure to recognize that something is being phased out. What the arbitrators in the work-rules dispute had in mind, I think, was the necessity for a new kind of recruitment which would set the foundation for a new labor organization able to function in terms of what is likely to occur. But as it now stands there is a kind of adverse relationship in which you are simply seeing how much power somebody has got to protect the old claims, whether they be those of labor, management, investor, communities, or even speculators.

Q. Unfortunately they didn't make very specific in the award itself what they have in mind.

A. They couldn't. If they had they would have gone beyond the conditions of the award. That award was an extremely limited thing. If they had tried to give new directions, the lawyers would have cut them off. Here again, we see how old structures, in this case legal ones, are designed to preserve the system even when its functions have been changed.

But the way out will only be found by creative minds, not by reliance on tradition. ■

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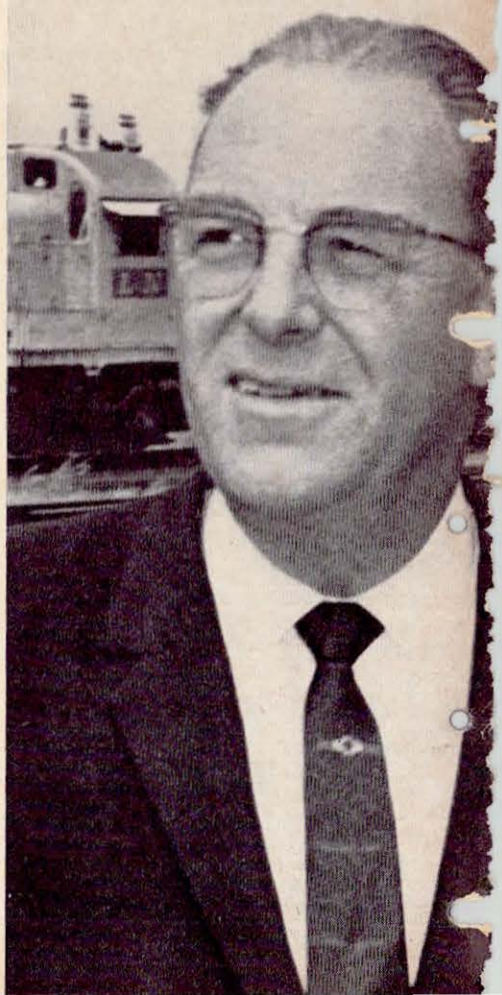
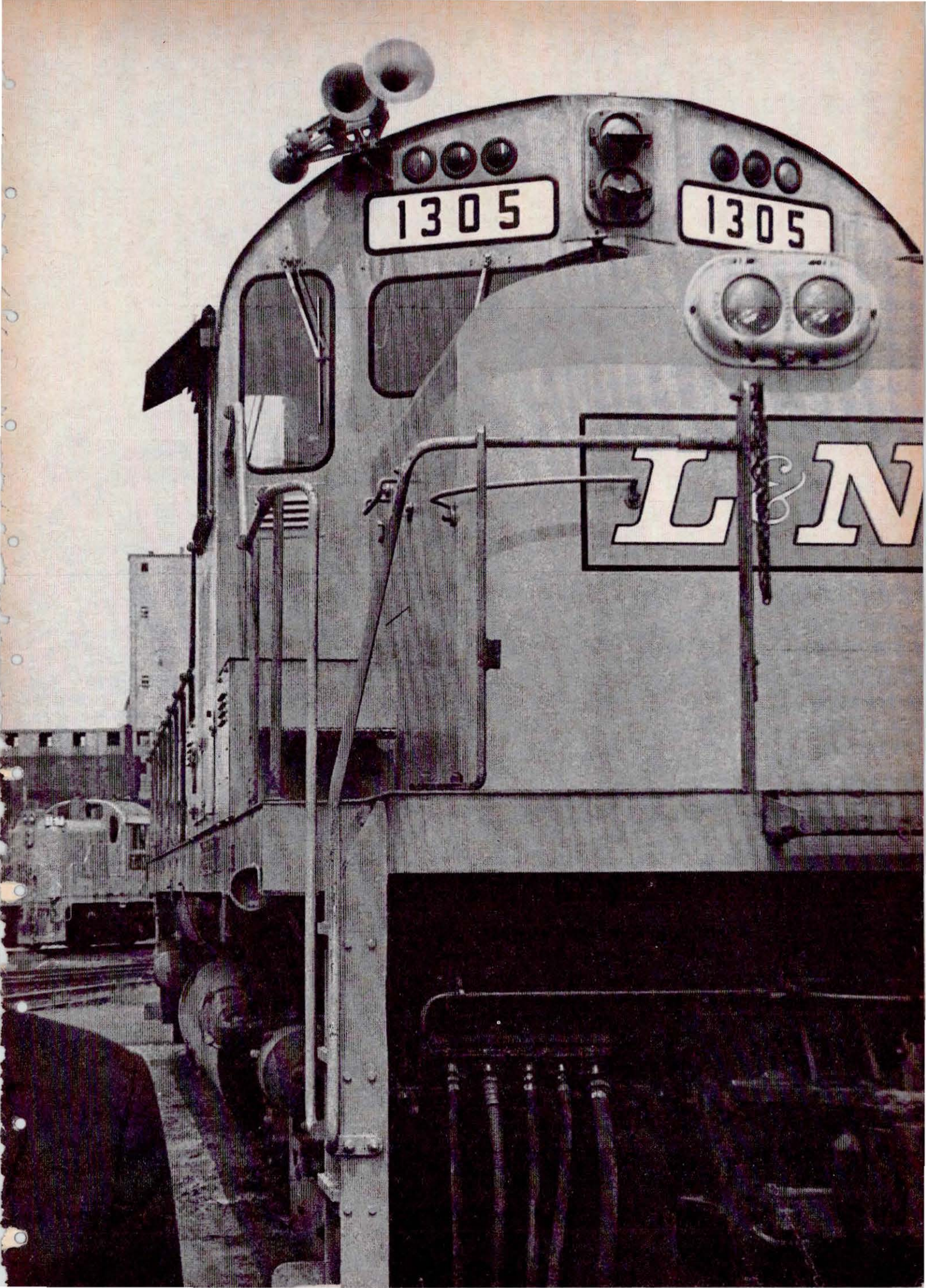


Circle 10 on reader service card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C&O finds new way to cut track costs

Equipment combination used on Hocking division has new unit which excavates ballast in the shoulder and intertrack space.

A track-rehabilitation project now in progress on the Chesapeake & Ohio is notable for two principal reasons:

—Among other savings it is producing what amounts to a new ballast section at an estimated savings of $1.25 per cubic yard of ballast.

—It is being done with an equipment combination whose output has been increased 50% simply by adding a new unit that had the effect of relieving another unit of some of the work it had formerly performed.

The project involves 56 miles of the road's double-track Hocking division between Columbus, Ohio, and Toledo. In this territory the ballast, which had become badly fouled, is being excavated to a depth of about 5 inches below the ties, screened of foreign material and returned to the track. Coordinated with this work, and taking place between the excavating process and the cleaning operation, tie renewals are being carried out and ties are being respaced. The track is then raised about 4 inches on the cleaned ballast and is surfaced and lined.

● **A contract job.** The ballast excavating and cleaning work is being performed by equipment furnished under contract by the Royce Kershaw Co., Inc. The equipment used is basically the same as that employed on a similar C&O project carried out last year (RA, Dec. 7, 1964, p. 24) on the road's lines in Kentucky.

In that project the equipment used consisted of a Kershaw Model 2FU-A Undercutter and Model 2FC-A Ballast Cleaner. Between the two machines there was a tie-tool tow bar equipped with a tie ejector, tie spacer and tie inserter. With this equipment the Undercutter excavated the ballast and skeletonized the track by means of a drag-cutter chain which, extending under the track, raised the excavated material and dropped it onto a series of conveyors that delivered it to the screens.

● **Shoulder excavator added.** What is different about the equipment being used this year is that a unit has been added which, operating ahead of the Undercutter and coupled to it, excavates the ballast in the shoulder and intertrack space. This work is done by bucket-wheel excavators, one on each side, which may be adjusted to cut to a depth of as much as 30 inches below the bottoms of the ties.

Material excavated by the bucket wheels is dumped on tranverse conveyors which deliver it to an inclined conveyor on the Undercutter. This conveyor delivers the material to a hopper on the Undercutter from which it is discharged onto the conveyor that serves the ballast-cleaning equipment. When it comes from the hopper the fouled ballast actually falls on the conveyor on top of the material that has been excavated by the Undercutter drag-chain.

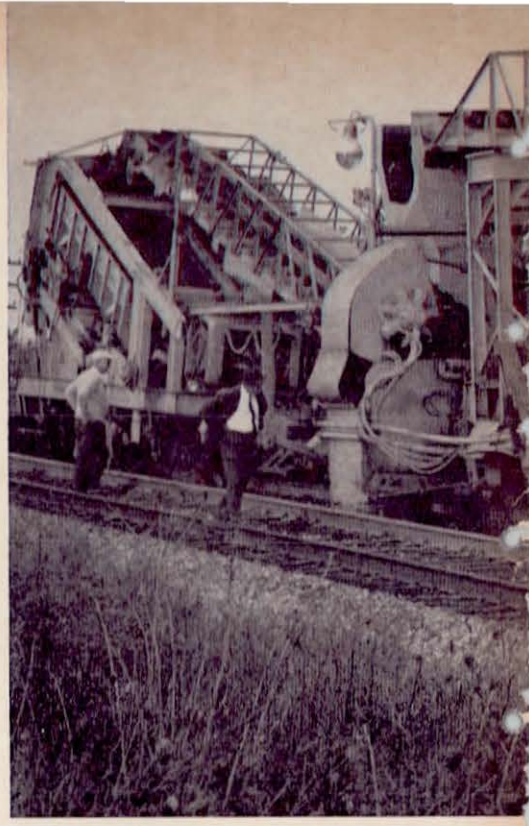
While it is coupled to the Undercutter the bucket-wheel excavator, like the Undercutter and the Ballast Cleaner, has its own power plant and may be operated as an independent unit, although such operation would not normally be indicated. The bucket wheels can be set to operate at a predetermined depth and distance from the center of the track.

● **Less work for drag chain.** With the bucket-wheel excavators included in the equipment combination the drag-chain on the Undercutter has only to excavate and handle the material from between and under the ties. The result is that the average operating rate of the combination is reported to have been increased from about 400 feet to 600 feet per hour of uninterrupted operation.

On the C&O the equipment is being operated two eight-hour shifts daily. The production is said to be averaging over 6,000 feet of track during each 16-hour work period. During this time approximately 2,100 cubic yards of foul ballast are being excavated, cleaned and returned to the track ready for the surfacing operation to follow. In conjunction with this work about 150 ties per mile are being renewed and approximately 2,900 ties per mile are being respaced to uniform centers.

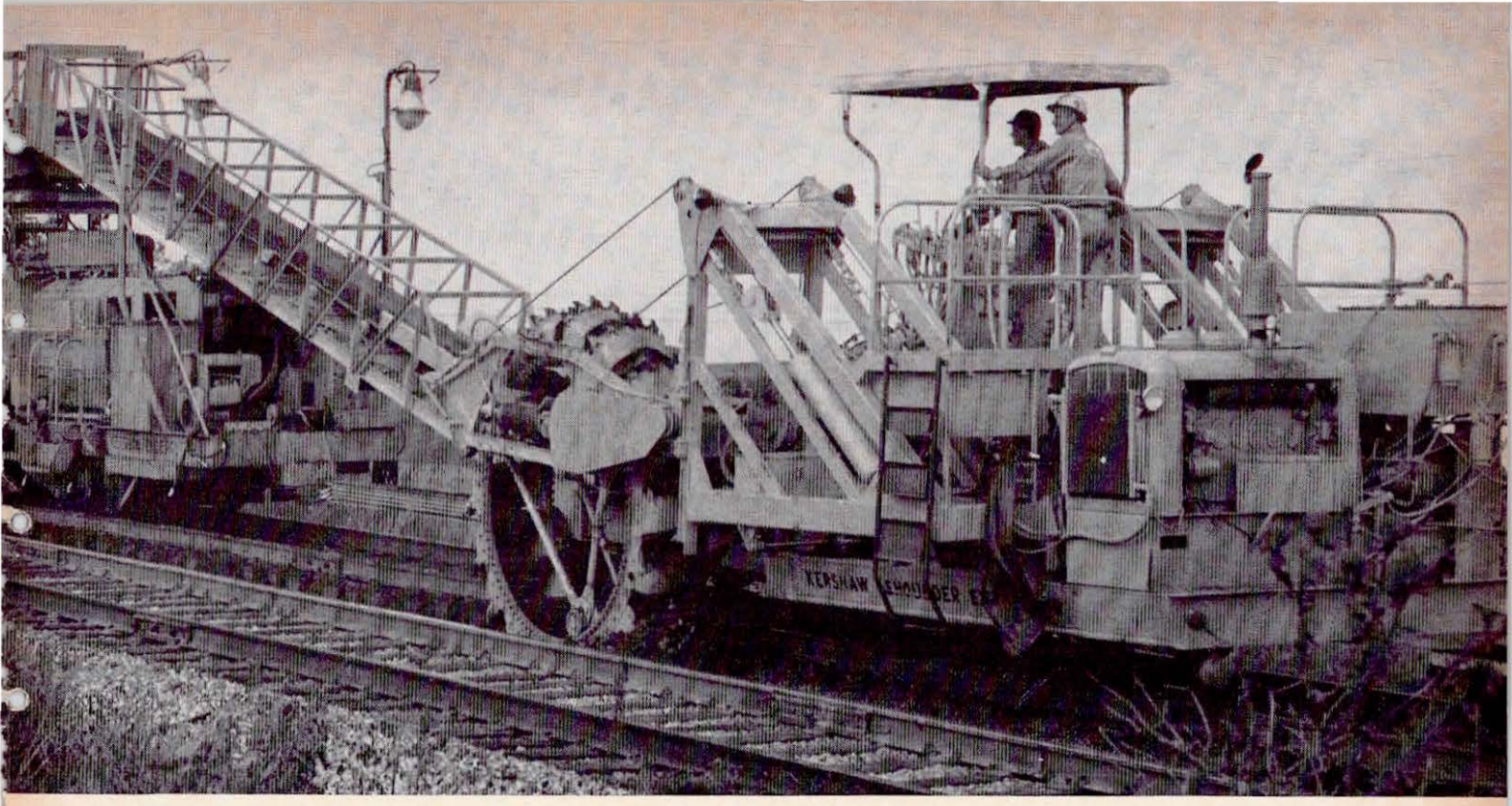
The work is being done in accordance with a service contract under which the Royce Kershaw Co. provides operator-mechanics to handle the operation, maintenance and servicing of the excavating and cleaning equipment. Other expenses for which Kershaw is responsible include fuel, lubricating and hydraulic oils, and the necessary parts and labor for making repairs. Kershaw personnel provided on the job amounts to five men on each shift.

For its part the railroad furnishes men for manning the tie-renewal and spacing equipment, and also for performing the surfacing and lining work. These requirements amount to 28 men on each shift including supervision.



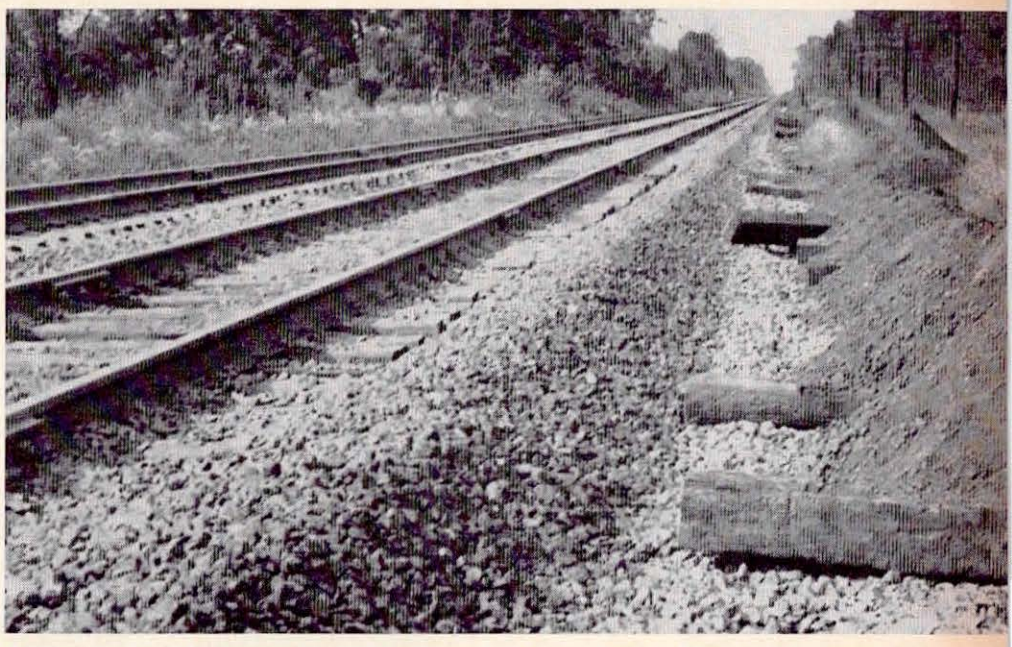
NEWLY ADDED UNIT with bucket wheels is

BEFORE: Ballast in territory where equipment



shown at the right. Unit, for excavating shoulder and intertrack ballast, increases output of equipment combination by 50%.

is working is fouled by foreign material.



AFTER: Track, with foreign material screened out, has free-draining ballast section.

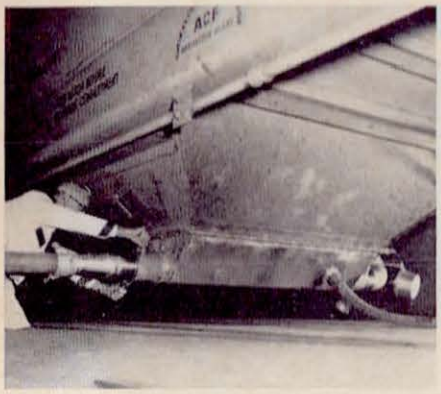
• **What the railroad gets.** For its expenditure the railroad obtains a clean, well-drained uniform ballast section with the addition of little or no new ballast. It is estimated that the complete excavating, cleaning and screening work is being performed at a cost of $1.25 per yard of ballast. Since new ballast would cost around $1.50 per yard at the quarry and about another $1 per yard for transportation and distribution, it is estimated that the railroad is saving at least $1.25 per cubic yard in the cost of ballast alone. At the same time the road avoids tying up the revenue equipment that would be needed for hauling ballast from the quarry.

There are other economies and advantages that are attributed to the practice of reclaiming and cleaning ballast in the manner being used on the C&O. One is that the practice makes it possible to place a cushion of clean ballast under the ties without raising the track. One estimate is that, by avoiding the cost of raising the embankment shoulders, a saving of about $1,000 per mile is realized. It is also pointed out that clearances under overpasses are maintained.

• **Other benefits.** There are still other advantages related directly to the type of equipment used. For instance:

Less equipment is spread over the tracks in separate operations, minimizing traffic delays. Since the equipment is self-propelled the use of work trains is minimized and the ballast supply is always at the work site. Renewal and respacing of the ties is completed during the undercutting and cleaning operation at little additional cost. And tie life should be increased significantly due to the drier conditions resulting from the restoration of drainage. ■

NEW PRODUCTS REPORT



Pneumatic Outlet (RA-1)

The "double wall" of the "fluidizing-pneumatic" outlet for Center Flow cars has an inner slope sheet wall of permeable stainless steel. The outlet can be used for controlled discharge of bulk ladings by fluidization, or for pneumatic unloading. Microscopic pores in the slope sheet, which is strengthened by a honeycombed steel sheet, allow fluidizing air to flow up and into lading, but no lading can be imbedded in sheet during loading or clean-out. There are three connections on exterior of outlet. On one side of the car is a connection for the pneumatic line leading to an unloading vacuum system. A central valve regulates the flow. An air filter or return air supply may be attached to the inlet nozzle on the other side of the car. On the underside of one exterior slope sheet is the connection for a fluidizing air line. The metal fluidizing membranes may be cleaned with soap and water or with stronger solvents. The outlet is interchangeable with other Center Flow car outlets. *Shippers' Car Line Div., ACF Industries, Inc.*

Monitoring System (RA-2)

The B1100 status monitoring systems can monitor any condition that can be represented by contact closure or an equivalent electrical voltage. It is designed to continuously report and display, or transfer the status of, any number of functions continuously, eliminating the need for either manual or automatic interrogation cycles with sequential readouts.

The function inputs determine the individual station's code which is continuously transmitted as detailed point-by-point information to the master station by DC transmission over wire line or by a B770 solid-state tone channel, utilizing wire line, cable or microwave transmission facilities.

Typical applications include the transmission of binary-coded data and/or the monitoring of: circuit breakers, motor-driven valves, hazardous-atmosphere-sensing devices, communication equipment, pressure switches, over-or-under voltage switches, flow switches and valves. *Lynch Communication Systems Inc.*

Side Fillers (RA-3)

The Equipco 8 PL side filler permits reducing box cars to eight different widths, including 111, 107, 104, 102, 100½, 99, 98 and 97 in., or length adjustments up to 48 in. For width adjustment, a single handle controls both locking and adjustment mechanism. Handle is released to reengage lock. Panels may be overlapped. Forward panel can be positioned up to 7 in. into door opening. A single panel can be removed "in less than 1 min." *Unarco Industries, Inc.*

Microorganism Detector (RA-4)

Micro Monitor kit for detecting microscopic "bugs" in distillate fuels that cause damage to storage tanks, locomotive tanks, and other fuel-handling equipment, consists of a plastic sampling device and two small bottles, labeled detector and control, containing oil, water, a nutrient and other ingredients known to promote growth of bacteria and fungi. The control bottle also contains Biobor JF, a biocidal fuel additive that kills microorganisms and sterilizes hydrocarbon fuel systems. An equal amount of a fuel or water-bottom sample is injected into each bottle. The presence and growth of destructive organisms are indicated in as little as 48 hr in detector bottle by cloudiness and a change in color. If detector bottle remains clear, sample is free of microorganisms. The control bottle will remain clear at all times because the additive kills all vegetable organisms in the sample. Chronological changes in color, development of slimes and other reactions can be recorded on chart provided with kit. *Boron Oil Co.*

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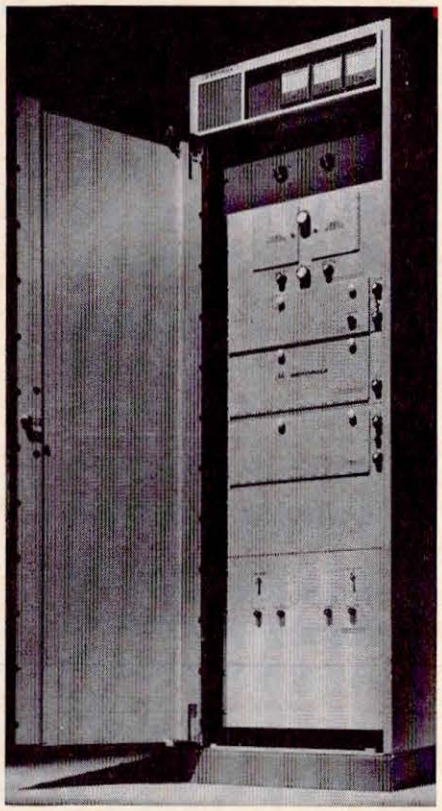
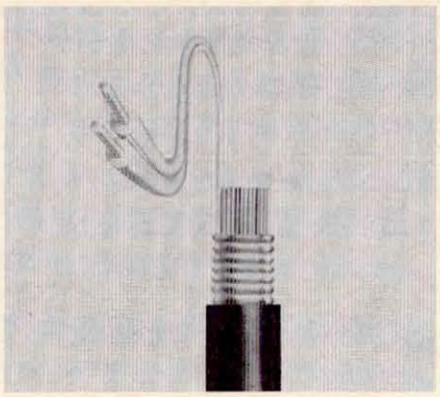


VHF Base Stations (RA-5)

A new line of VHF radio base stations, with power outputs up to 375 watts, are all solid state, with the exception of the final amplifiers, and one or two tubes in the transmitter exciter. It has a remote control chassis, which includes replacement of the power and push-to-talk switching relays with semiconductor circuitry.

The unit is available with an operational RF crystal filter.

The unit also has two audio outputs from the receiver. The first is a 3-watt output into the local speaker, with a response between 1 and −8 db from 300 to 3,000 cps; the second is to the telephone line which goes back to the remote control console. This output is rated at plus 18 dbm and has a response of plus 1 to −3 dbm from 300 to 3,000 cps. The distortion on the telephone line is less than 3% for improved audio quality and clarity of messages. In the 136-174 mc range, power outputs are 70 watts, 100 watts, 120 watts and 375 watts. Low band (25-50 mc) outputs are 100 watts, 120 watts and 330 watts. *Motorola Communications and Electronics, Inc.*



Paired Cable (RA-6)

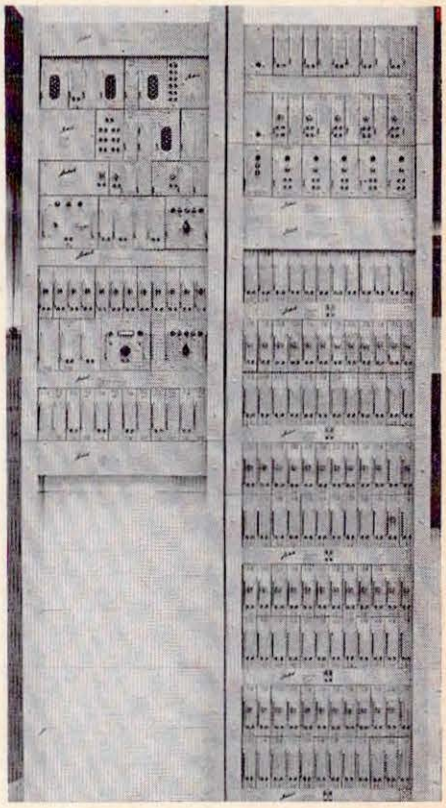
Patented UniPair construction extrudes color coded plastic insulation on both conductors of a pair at the same time and also forms a web connecting the conductors.

During the extrusion process, both conductors are under equal tension, so a substantial improvement in resistance unbalance is obtained. Because both conductors in a pair are attached, they remain equal in length throughout such fabrication stages as "pair twist lay." These uniformities obtained with UniPair construction are providing this new telephone cable with better transmission characteristics, including improved noise and crosstalk levels. Of special note is the considerable improvement in the crosstalk level of the "worst pair combination."

Under the UniPair construction concept, both conductors of the pair are insulated simultaneously and joined together by a thin web while maintaining the standard color code. UniPair telephone cable is available in 26, 24, 22 and 19 Awg conductors. *Whitney-Blake Co.*

Diesel Oil (RA-8)

Dieseltex SL 40, a diesel lubricating oil of the high-dispersancy type, is said to have the superior oxidation stability and alkaline reserve needed in high-output diesel engines and to provide excellent lubrication both for copper-lead and silver bearings. Recently developed additives in the oil are said to inhibit the build-up of oxidation products, reduce deposits on filters, and promote longer ring and liner life under severe operating conditions. *Texaco Inc.*



Carrier System (RA-7)

The all-transistorized 46A carrier system is suited for the transmission of voice, telegraph, facsimile and data information between any number of stations. The basic units, shelves and assemblies that make up the system may be combined on a channel bank, common equipment, terminal, or system basis to expand existing facilities or to install new carrier paths.

Common and terminal equipment can be used to expand carrier systems such as the 45BX carrier systems, or systems meeting CCITT recommendations.

Two types of common equipment provide a variety of system arrangements. Common equipment for up to 600 channels contains parallel or alternate active circuitry to give the maximum service protection. More economical arrangements provide 4, 12 and up to 120 channels.

Since channel and group equipment remain the same for either arrangement, expansion to a full 600-channel-capacity system requires only a change of some of the common equipment. *Lenkurt Electric Co., Inc.*

Performance of one USS Tenelon Stainless Steel car leads to production of 10 more

In 1964, American Potash and Chemical Corporation leased a single USS TENELON Stainless Steel car from North American Car Corporation for hauling sodium chlorate. This is a high-quality chemical used for bleaching kraft pulp. It must be kept absolutely clean and free from contaminants. To accomplish this and to permit unloading as a slurry, the car was designed like a tank car but functions as a covered hopper.

The car was put into service and its performance carefully studied. Cleaning was found to be easy, and there was no maintenance on the car body. Operating results were so good that American Potash leased 10 more cars with a few modifications. Weight was reduced by 16,500 lbs., making the total weight only 50,600 lbs. This was done by reducing the thickness of the USS TENELON Stainless Steel plates to ¼". Also, tank compartments were reduced from three to two, and other design changes made. The gross tank capacity of the new design is 18,190 gallons or 212,400 lbs. . . . 190 gallons higher than the capacity of the original car.

USS TENELON Stainless Steel is not only corrosion resistant but is also about twice as strong as conventional stainless steels. It has a smooth, attractive, lasting surface and requires no paint or maintenance, inside or out. You can haul such varied cargo as sugar, soda ash, rice, silica sand, or chemicals, without fear of contamination. Shippers and railroads like the quick turnaround time and the absence of maintenance costs on the car body.

For complete information on USS TENELON Stainless Steel, or the USS family of stronger steels for railroad cars, call the nearest USS District Sales Office or write United States Steel, Room 8593, 525 William Penn Place, Pittsburgh, Pennsylvania 15230. USS and TENELON are registered trademarks.

USS United States Steel: where the big idea is innovation

This mark tells you a product is made of steel.

'65 net running 8% over '64 level

Best third quarter in 10 years gives boost to rail earnings.

The resurgent earning power of railroads will be underscored when profit figures for this year's first nine months are tallied. While an official earnings estimate for the industry as a whole has not yet been made public, a study of the performance of individual roads (see box) points to a nine-months' profit in the neighborhood of $540 million—up 8% from the $500 million carried over to net in 1964's first three quarters.

At the halfway mark this year, Class I earnings were officially estimated at $335 million—a gain of only 2% over the comparable 1964 figure.

Big boost for the railroads came in the third quarter. Earnings for that three-month period were close to $205 million, an increase of 20% over the $170 million reported for the 1964 period. Last time the railroads had a $200-million-plus third quarter was in 1956, when they earned $209 million. (In 1955, the third-quarter showing was $242 million—indicating that the industry still has a long way to go on the comeback trail.)

● **For some, new highs.** While the good showing of many roads was only relative, for others it could be stated in absolute terms. Both Union Pacific and Norfolk & Western, for example, reported earnings that went on the books as all-time highs. There was no sign of a tapering off in the fourth quarter. "Business in the first three weeks of October has been excellent," noted N&W President H. H. Pevler. "We have broken our all-time daily and weekly coal loading records and are showing substantial gains in new automobile transport and in piggyback." New York Central had its best nine-month showing since 1956—an improvement which President A. E. Perlman attributed to "new marketing and cost data techniques that have enabled the railroad to determine the rates, equipment and services that will be most profitable." He noted that while car loadings rose only 0.4% during the first nine months of this year, the average revenue per car increased $7.13 over last year to a new high of $172.70.

Louisville & Nashville was able to report higher earnings this year despite a third-quarter deduction of $1,733,834 for what goes on the books as "nonrecurring hurricane expenses." (An additional $1,300,000 will be added to L&N's Hurricane Betsy bill over the next few months to fully repair roadway damage caused by the storm.)

● **Comeback story.** One of the most impressive success stories of the year is being written by Erie Lackawanna. In 1964's first nine months, E-L operated at a net deficit of $7.7 million, including a third-quarter loss of $4.2 million. This year, E-L reported a nine-month black figure of $481,276, despite a third-quarter deficit of $32,344. Commented E-L Chairman White: "It would appear now that barring unforeseen developments Erie Lackawanna will end the year 1965 close to the break-even point, with a possibility of a slight profit."

Also coming back fast, but with farther to go, is the Rock Island. After a disastrous first half in 1965, the road achieved a net income figure—regarded as "modest but meaningful"—for the third quarter. The net, was, indeed modest—$56,334. It left RI with a deficit of more than $4.6 million for the first nine months.

"But," said Chairman and President Jervis Langdon, Jr.: "We hope this return to black figures in the third quarter means that our railroad is turning the corner and that the improvement in earnings will continue."

● **Suppliers benefit.** As the railroads prosper, so do their suppliers—and this year has been no exception. Westinghouse Air Brake reported nine-month earnings totaling $10.3 million, an increase of 22% over the corresponding 1964 period.

General American's nine-month profit climbed 13% to $20 million—and a rising demand for leased equipment has caused GATC to increase its estimate of 1965 capital expenditures to $50 million.

AMSTED, whose fiscal year ended Sept. 30, reported earnings totaling $11.8 million, up 19% from 1964. It was, said President Joseph B. Lanterman, "the greatest year in AMSTED's history." ■

AT THE END OF THE THIRD QUARTER

RAILROAD	NET INCOME, 1965	FIRST NINE MONTHS 1964	% CHANGE
Atlantic Coast Line	$12,642,000	$10,981,000	+ 15.1
Baltimore & Ohio	11,542,000	6,601,000	+ 74.9
Chesapeake & Ohio	31,918,000	31,135,000	+ 2.5
Chicago & North Western	10,413,000*	3,248,000	+220.6
Chicago South Shore & South Bend	97,000	172,000	— 43.6
Delaware & Hudson	3,648,000	3,190,000	+ 14.4
Erie Lackawanna	481,000	— 7,700,000	....
Frisco	7,252,000	4,796,000	+ 51.2
Great Northern	21,000,000	20,800,000	+ 1.0
Louisville & Nashville	11,436,000	10,659,000	+ 7.3
Milwaukee	245,000	175,000	+ 40.0
Missouri Pacific	19,794,000	18,604,000	+ 6.4
New York Central	22,280,000	17,480,000	+ 27.5
Norfolk & Western	66,657,000	60,473,000	+ 10.2
Northern Pacific	18,448,000	17,056,000	+ 8.2
Pennsylvania System	46,230,000	38,811,000	+ 19.1
Pittsburgh & Lake Erie	7,010,000	6,759,000	+ 3.7
Richmond, Fredericksburg & Potomac	3,595,000	2,658,000	+ 35.3
Rock Island	4,630,000	1,952,000	....
Santa Fe	64,271,000	59,944,000	+ 7.2
Seaboard Air Line	11,063,000	10,846,000	+ 2.0
Soo Line	4,747,000	4,322,000	+ 9.8
Southern Pacific	79,224,000	84,240,000	— 6.0
Union Pacific	62,867,000	59,586,000	+ 5.5
Western Pacific	4,857,000	5,141,000	— 5.5

*C&NW's 1965 net includes $2,474,000 from Velsicol Chemical Corp., acquired July 1, 1965.

Robert D. Adamson
EJ&E

Maurice R. Seipler
EJ&E

PEOPLE

ATLANTIC COAST LINE.—**C. F. Bell** appointed freight claim agent, Jacksonville, Fla., succeeding **H. F. Harris,** who retires Nov. 11, after more than 44 years of service.

J. T. Belcher, office assistant to general superintendent transportation, retired Nov. 1.

BURLINGTON.—Computer planning and programming operations have been consolidated and placed in the executive department. **Francis J. Dillon** appointed director of computer systems and planning, and **Arthur E. Pew III,** assistant director.

CANADIAN PACIFIC.—**M. A. Keays** appointed superintendent transportation, Winnipeg, Man., succeeding **D. F. Crawford,** who retired Oct. 31 after more than 50 years service.

CHESAPEAKE & OHIO—BALTIMORE & OHIO.—**T. Howard Keelor** elected corporate secretary, B&O, filling the vacancy created by the retirement of **August W. Schell.** He has been secretary of the affiliated C&O.

Richard L. Masse appointed supervisor of safety and fire prevention, Ludington, Ky., succeeding **Richard W. Harris,** transferred to Saginaw, Mich.

ELGIN, JOLIET & EASTERN.—**Robert D. Adamson,** superintendent, Joliet division, named general superintendent of transportation, Gary, Ind. Mr. Adamson's successor is **Maurice R. Seipler,** acting superintendent, Joliet division. **James W. Hartshorne,** assistant to the general superintendent, Joliet, Ill., appointed assistant superintendent, Gary division, Kirk yard, Gary, Ind. **Jack F. Madden,** trainmaster-EJ&E system, named to replace Mr. Hartshorne. **John E. Smith,** supervisor of personnel, Chicago, named trainmaster, Gary Mill division, Gary.

FRISCO.—**Paul R. Moody** named general attorney.

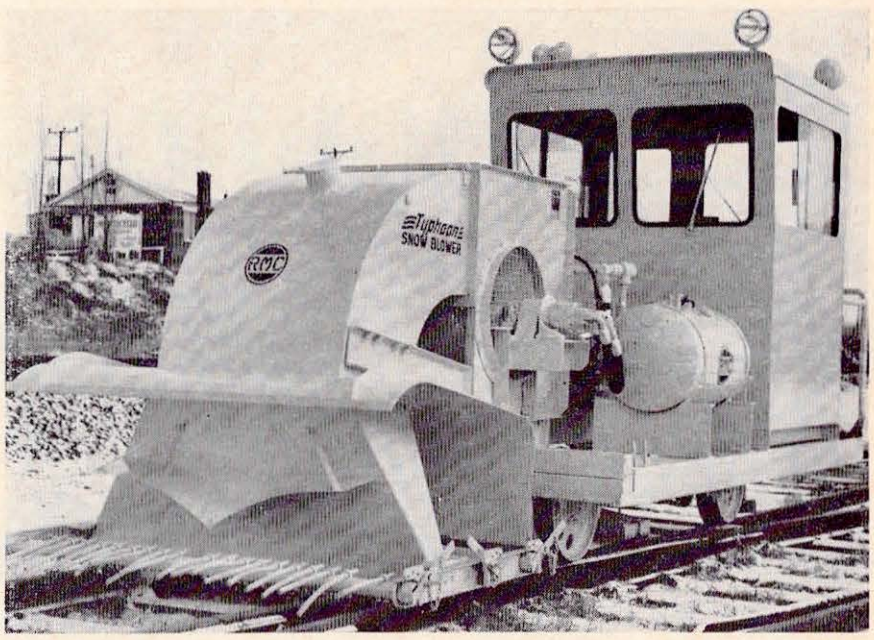
LEHIGH VALLEY.—**John F. Nash** elected president and general manager, Bethlehem, Pa. Mr. Nash, who had been senior vice president, **New York Central** since June 1963, succeeds **Allen J. Greenough** as president and **Howard C. Kohout** as general manager. Mr. Greenough, president of the **Pennsylvania,** will continue as a director of the LV. Mr. Kohout will become general manager, Western Region, PRR, Chicago.

LOUISVILLE & NASHVILLE.—**Lee H. Thames,** freight traffic agent, Cincinnati, appointed district piggyback representative there, to succeed **L. E. Estill,** named general agent, Philadelphia (RA, Oct. 25, p. 50).

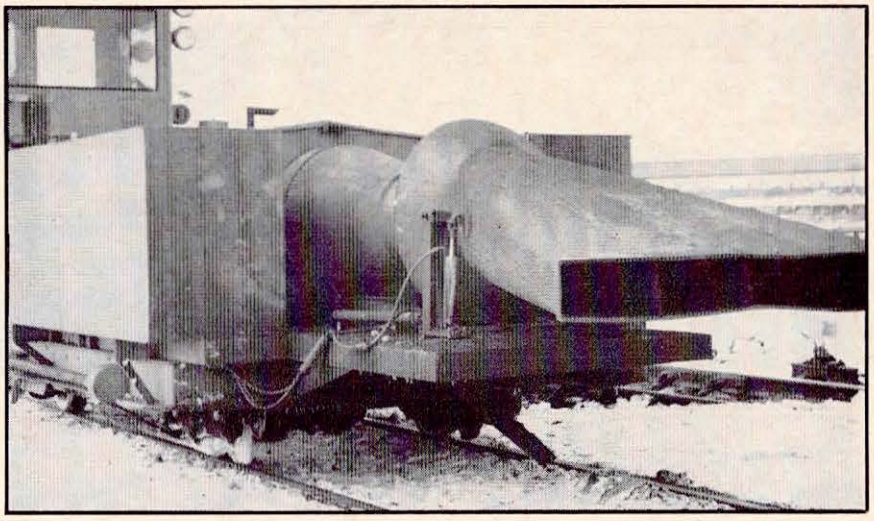
(Continued on page 34)

Typhoon or Hurricane...

Clear . . . Snow . . . Fast!



TYPHOON | Removes snow down to frozen ballast—from around switch rods, operating rods, from under stock rails and switch points. 160 mph wind blast distributes snow to atmosphere. Shown is self-propelled Typhoon with heated cab. Skid-mounted and wheel-mounted versions also available, priced from $6500.



HURRICANE | Essentially a jet engine mounted on a self-propelled, rail-mounted car, Hurricane directs a continuous blast of high-velocity air (650 mph) at snow on tracks. Very effective for removing snow from tracks and switches in heavy snow territory.

RMC

Railway Maintenance Corporation

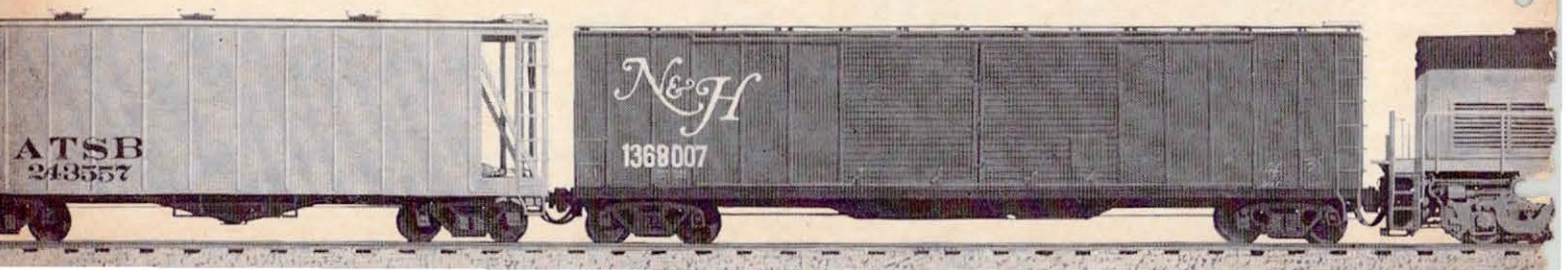
Box 1888 • Pittsburgh, Pa. 15230

Circle 11 on reader service card

after 3 years of development and 500 locomotive months of testing on two major railroads in different parts of the country...

Gulf announces the first completely ashless railroad diesel lubricating oil...

Gulf Dieselmotive 470



Circle 12 on reader service card

FROM GULF comes the first and only completely ashless, highly dispersant oil for diesel locomotives. Dieselmotive 470 eliminates right-of-way fires attributed to conventional lubricating oils containing metallic additives. And, it is the only oil available which provides you with these outstanding performance features:

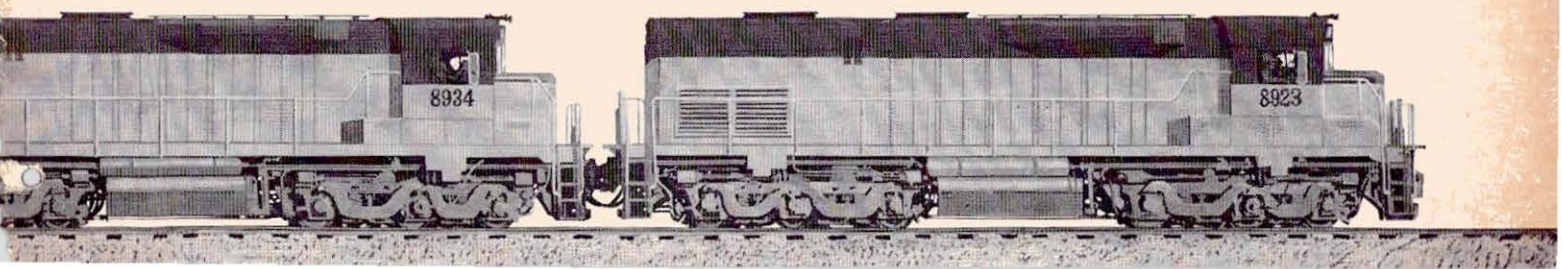
1. Increases filter element life by at least 300%. (In actual field tests filter element life increased as much as 600%.)
2. Engines stay unusually clean, thus dramatically reducing engine cleanup during overhaul.
3. Maintains oil cooler efficiency by eliminating passage-deposits that interfere with proper heat transfer.
4. Provides water contamination safety factor. (Additives are not affected by water so they do not dump-out when contaminated.)
5. Has extra high stability and anti-oxidation characteristics.
6. Provides superior lubrication and protection for silver bearings.

Remember, this is the *first* completely ashless lubricating oil for diesel locomotives. And only Gulf has it.

For more information on this outstanding new oil, write, wire or phone: GULF OIL CORPORATION, Department DM20-11, Gulf Building, Houston, Texas 77002. Telephone: area code: 713 CA 5-3141, ext. 2196.

Gulf®

Gulf makes things run better!



For the boys who like Bay Type Cabooses

We build them with Safety, Comfort and Visibility combined

There is a reason why 13 leading U.S. railroads use International Bay Type Cabooses. In fact, there are several reasons. Visibility, comfort, reliability, safety. We could go on and on — like these International Cabooses do — for years and years of economical service. But why not get in touch with one of our representatives. He can give you the whole story including the thousand and one variations with which we can custom-build them.

It's a fact. The fussiest conductor on your road will be as happy as the proverbial lark in his International office on wheels with all the comforts of home.

INTERNATIONAL CAR CORP.

835 ENGLEWOOD AVENUE • BUFFALO, N. Y. 14223

Representatives:
W. R. Collins — New York, N. Y. • R. H. Jenkins — Washington, D. C.
M. H. Frank — Cleveland, O. • G. G. Prest — St. Paul, Minn.
R. B. Hornberger — San Francisco, Cal. • F. E. Ross, Jr. — St. Louis, Mo.
E. J. Hasten, Jr., W. B. Reed — Chicago, Ill.

A NATIONWIDE LEASING COMPANY Subsidiary

Circle 13 on reader service card

(*Continued from page 31*)

NEW YORK CENTRAL.—**Chester Arthur Skoldberg,** assistant supervisor of marine operations, promoted to supervisor of marine operations, New York district, succeeding **William C. Navara,** retired.

NEW HAVEN.—**Charles F. Clark,** general passenger agent, New York, retired Nov. 1, after more than 44 years with the New Haven. **Charles C. Moeller** appointed assistant general passenger agent, Grand Central Terminal, New York.

NORFOLK & WESTERN.—**Richard F. Dunlap,** general manager, Lake Region, Cleveland, named assistant vice president—operations, Roanoke, a new position. **Charles G. Hammond, Jr.,** superintendent, Pittsburgh division, Brewster, Ohio, promoted to general manager, Lake Region, succeeding Mr. Dunlap. **Wilford C. Stevens,** superintendent, Pocahontas division, Bluefield, W. Va., transferred to Pittsburgh. **W. O. Tracy, Jr.,** superintendent, Radford division, Roanoke, transferred to the Pocahontas Division. **William E. Ruby,** superintendent Muncie division, transferred to the Radford division. **Ralph E. Kieser,** assistant manager of transportation, Lake Region, promoted to superintendent, Muncie division. **Leroy D. Brown,** terminal supervisor, Bellevue, Ohio, succeeds Mr. Kieser at Cleveland. **Ralph G. Plunkett,** assistant yardmaster, Winston-Salem, N.C., named general yardmaster, Bellevue.

NORFOLK SOUTHERN.—**W. A. Miller,** mechanical engineer, Norfolk, Va., appointed assistant chief mechanical officer there and his former position abolished.

NORTH VIRGINIA TRANSPORTATION COMMISSION.—**Frederick A. Babson,** chairman, announced appointment of **Charles J. Lietwiler** as senior transportation planner. Mr. Lietwiler, a transit consultant, has worked on transit projects for Seattle, Pittsburgh, Washington and Boston.

PENNSYLVANIA.—The following appointments have been made on the New York Division: **M. L. Stewart,** supervisor passenger train operation, named assistant superintendent—passenger, replacing **C. R. Boyd,** who retired Nov. 1 after more than 47 years of service. **A. R. McRae,** assistant superintendent motive power, Buffalo, N.Y., transferred to New York, succeeding **C. E. Leafgreen,** on leave of absence. **D. E. Young,** division operator, Buffalo, transferred to New York. **R. E. Ent,** appointed rules examiner. **W. J. Shields** appointed supervisor passenger train operation. **F. L. Paulin** named passenger trainmaster, Sunnyside Yard, Long Island. **R. J. Hunter** named passenger trainmaster—assistant division operator. **J. F. Keenan** named acting passenger trainmaster (night).

READING.—**Charles W. Hart** appointed public relations representative, Philadelphia. He previously served in public relations posts in the petroleum and railroad industries.

(*Continued on page 38*)

For the record

There was a typographical error in the "As the Publisher Sees It" column in Railway Age for Nov. 1, p. 12. The bar chart showing advertising pages for the "Nearest Competitor" read 1,149. The correct figure is 1,199. The dollar volume for the "Nearest Competitor," and all other figures on the page, were correct.

MARKET OUTLOOK

Carloadings

Loadings of revenue freight in the week ended Oct. 30 totaled 634,862 cars, the Association of American Railroads announced on Nov. 4. This was an increase of 12,234 cars, or 2.0%, compared with the previous week; a decrease of 12,640 cars, or 2.0%, compared with the corresponding week last year; and an increase of 12,183 cars, or 2.0%, compared with the equivalent 1963 week. Ton-miles generated by carloadings in the week ended Oct. 30 are estimated at 14.9 billion, an increase of 3.0% above the corresponding week of 1964, and 10.7% above the 1963 week.

REVENUE FREIGHT CARLOADINGS
For the week ended Saturday, Oct. 30

District	1965	1964	1963
Eastern, including Allegheny and Pocahontas ..	247,486	252,182	242,748
Southern	121,910	126,698	119,009
Total Eastern and Southern Districts	369,396	378,880	361,757
Northwestern .	90,298	94,373	85,905
Central Western	131,530	130,527	131,149
Southwestern .	43,638	43,722	43,868
Total Western Districts	265,466	268,622	260,922
Total All Roads	634,862	647,502	622,679
Commodities:			
Grain and Grain products	61,176	66,571	68,709
Livestock	5,176	5,630	6,295
Coal	124,143	121,636	116,848
Coke	7,454	9,728	6,540
Forest Products	40,266	41,443	39,248
Ore	38,694	50,745	38,503
Merchandise l.c.l.	8,217	10,953	15,734
Miscellaneous .	349,196	340,796	330,802
Oct. 30	634,862	647,502	622,679
Oct. 23	622,628	637,059	625,173
Oct. 16	633,057	630,345	625,923
Oct. 9	614,214	623,840	635,927
Oct. 2	603,093	611,229	632,116
Cumulative total, 44 weeks	25,018,037	24,603,902	24,664,379
Estimated revenue ton-miles (billions) 44 weeks	585.8	558.5	528.9

PIGGYBACK CARLOADINGS.—U.S. piggyback loadings for the week ended Oct. 23 totaled 22,865 cars, compared with 18,733 for the corresponding 1964 week. Loadings for 1965 up to Oct. 23 totaled 846,038 cars, compared with 735,041 for the corresponding period of 1964.

IN CANADA.—Carloadings for the seven-day period ended Oct. 14 totaled 80,857 cars, compared with 85,731 for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada		
Oct. 14, 1965	80,857	25,206
Oct. 14, 1964	76,737	20,545
Cumulative Totals		
Oct. 14, 1965	3,086,813	980,053
Oct. 14, 1964	3,096,675	958,777

FREIGHT-TRAIN CARS

► *Great Northern.*—Ordered 25 90-ton bulkhead flat cars from Thrall Car for delivery in second-quarter 1966.

► *Monsanto Company.*—Ordered 37 tank cars from ACF at a cost of $1.4 million. Capacity of each car is approximately 22,900 gallons. The cars will be used initially to transport elemental phosphorus. Delivery is scheduled to begin in December.

► *Norfolk & Western.*—Authorized expenditure of almost $25.5 million for acquisition of 1,055 new special-purpose freight cars and installation of auto racks or tie-down equipment on 64 flat cars. Orders have been placed for 373 86½-ft auto-parts box cars at a cost of about $13.8 million. Greenville Steel Car will build 223 units, Thrall Car will build 150. Also authorized is acquisition of 50 100-ton, 3,200-cu-ft-capacity covered hopper cars; 275 100-ton, 4,650-cu-ft-capacity covered hopper cars; 200 100-ton, 65-ft gondolas with 66-in. sides for movement of structural steel; 107 60-ft auto-parts box cars; and 50 70-ton, 40-ft box cars. All box cars will be equipped with lading-protection devices. N&W President Herman H. Pevler said the new purchases will bring to about $99.5 million the total committed by the road this year for motive power, freight cars and car equipment.

► *Santa Fe.*—Ordered 101 100-ton, 4,000-cu-ft-capacity solid-bottom gondolas from Transco at a cost of $1.5 million. Cars will be used in unit-train operation between a Kaiser Steel coal mine near Raton, New Mexico, and Kaiser's steel plant at Fontana, Calif. Transco will deliver the cars from its new San Bernardino, Calif., plant in first quarter 1966. ATSF's total investment in the new unit-train service will be about $7.5 million, including $4 million for construction of a 37.5-mile spur from mainline to mine and $2 million for 11 2,500-hp diesel-electric locomotives ordered last May from EMD. The operation will begin next March on a schedule calling for movement of 8,400 tons of coal from the mine every four days.

► *Seaboard.*—Ordered 1,000 new freight cars at a cost of $13 million. The order includes 600 100-ton covered hoppers to be built by Pullman-Standard; 300 70-ton woodrack cars to be built by Magor Car for hauling pulpwood; and 100 70-ton woodchip cars to be built by Greenville Steel Car. Deliveries will begin in February.

NEW FACILITIES

► *Chesapeake & Ohio.*—Ordered Syncrostep control equipment from General Railway Signal for remote control of interlocking at Mershon Junction, Mich. Signaling material was also ordered for interlocking at Plymouth, Mich.

SPECIAL

► *Louisville & Nashville.*—Roadway equipment to be purchased in 1966 will include a number of multiple tampers, hi-rail truck cranes, tie adzers, heavy-duty ballast regulators, tractors with back-hoe attachments, a Gradall machine and attachments, small hand tampers, spot tampers, track liners and tie spacers.

YOU OUGHT TO KNOW

Nobody wants train delay: One of the traditional problems in maintaining passenger schedules—strong-arm loading and unloading of mail—has been tackled by Great Northern in an experimental container-mail program. Two flat cars, each equipped to handle seven mail containers, were put in daily service between St. Paul and three points on the northbound route of GN's "Winnipeg Limited." At each point, containers were unloaded by fork-lift truck—and the train went on its way without time-consuming hand-handling of mail. Empties were picked up on the southbound run. GN's operating department is now evaluating results of the test moves.

Fast trains go faster: The Japanese National Railways' famed high-speed Tokaido line trains last week began running between Tokyo and Osaka at an average speed of 103 mph. Since the trains went into service on the 322-mile route over a year ago they have been kept to an 80-mph average to permit the roadbed to settle. At points on their runs the trains are now hitting 126 mph. Railway officers say their trains are now the fastest in the world, beating out France's Mistrial Express between Paris and Dijon by some 20 miles an hour.

Huck Company expands: The Huck Manufacturing Company of Detroit, Mich., a prime supplier of fastening devices and systems to the railroads, aircraft and aerospace, shipbuilding, trucking and other industries, has bought Electrol, Inc., of Kingston, N.Y. The Kingston company manufactures equipment primarily for the aerospace industry. The new subsidiary will go under the name of Hucktrol, Inc.

Toll-free telephone service: The Reading, anxious to meet the transportation needs of its suburban Philadelphia commuters, has set up a toll-free telephone service to provide information on train schedules and fares. The new arrangement is part of the road's passenger-service improvement efforts under the 18-month "Operation Reading" publicly-supported experiment.

Skokie riding high: Chicago Transit Authority's spectacularly successful Skokie Swift rapid transit line continues to build up its passenger population. On Oct. 15, a Friday, the line carried 7,765 passengers, breaking the previous high of 7,537 persons carried Dec. 4, 1964. Riding for the week of Oct. 16 also set a new record, topping 40,000 passengers.

After the Fair is over: The Long Island's miniature train that hauled more than a quarter of a million people at the New York World's Fair has been sold to an aircraft company for its employee recreation park. LI President Thomas Goodfellow promptly donated the sale price—$3,000—to the United Fund.

Transportation costs: Americans spent an estimated $126.2 billion for all types of transportation in 1964, a gain of 6.7% over 1963, according to a statistical analysis released by the Transportation Association of America. The total takes in all types of private and for-hire freight and passenger transport. Rail transport outlays, including shipper costs for loading and unloading freight cars, totaled $10.3 billion, or more than 18% of the nation's total freight bill of over $56 billion. Local and intercity highway freight traffic accounted for $40.2 billion; water transport, $2.9 billion; and oil pipelines, $1 billion.

Evans buys Chicago supplier: Evans Products Co., headquartered in Portland, Ore. has acquired the Chicago Railway Equipment Co., Chicago, a division of AMK Corp., manufacturer of railroad car brake beams, freight car doors, and railroad safety devices. The purchase price was approximately $3.5 million in cash. The new acquisition will operate as part of Evans Products' transportation equipment division, based in Plymouth, Mich. Evans bought the company to expand its services to railroads and shippers.

Truck tonnage: Intercity truck tonnage in the week ended Oct. 23 was 0.6% below that of the preceding week, and 7.6% ahead of the volume in the corresponding week of 1964, according to American Trucking Associations.

Current statistics

Net Income	
6 mos., 1965	$335,000,000
6 mos., 1964	330,000,000
Carloadings, revenue freight	
44 wks., 1965	25,018,037
44 wks., 1964	24,603,902
Freight cars on order	
Oct. 1, 1965	42,222
Oct. 1, 1964	31,201
Freight cars delivered	
9 mos., 1965	54,855
9 mos., 1964	51,440
Serviceable cars	
Oct. 1, 1965	1,401,982
Oct. 1, 1964	1,407,571

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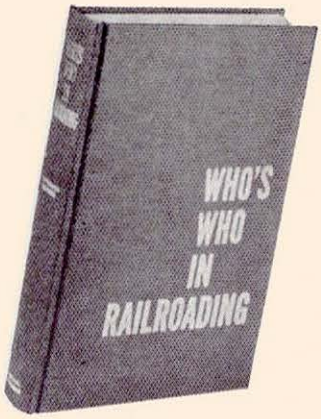

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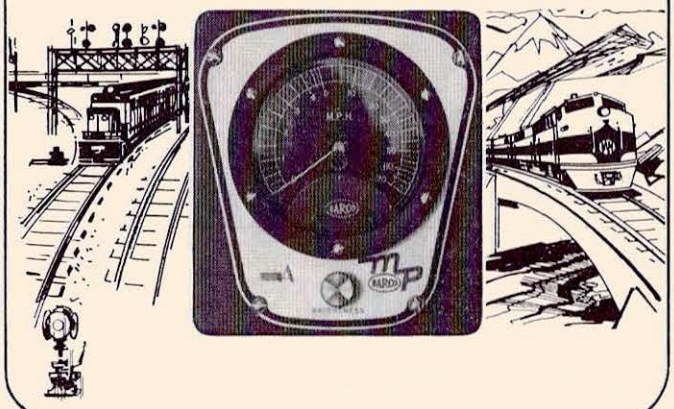

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EMD

H. L. Smith, Jr.
EMD

Charles C. Davis
Alco

(Continued from page 34)

ROCK ISLAND.—**Joseph O. Howard,** manager of advertising, and **Theodore J. Zirbes,** manager of press relations, Chicago, named assistant directors of public relations.

SANTA FE.—**W. O. Weems** named assistant superintendent of special service, with jurisdiction over Western Lines, Fort Worth, Tex.

SEABOARD.—**William D. Woodson,** division freight agent, West Palm Beach, Fla., named district freight agent there, succeeding **George S. Woodward,** division freight agent, who retired Oct. 31, after more than 40 years with the Seaboard.

SOUTHERN.—**William H. Moore** elected vice president in charge of operations, Washington, D.C., succeeding **Richard E. Franklin,** elected senior vice president. Mr. Moore has been president, **Terminal Railroad Assn. of St. Louis** since 1963 and relinquished that post on Nov. 1 to return to the Southern.

Supply Trade

Thomas B. Dilworth, chief engineer, **Electro-Motive Division, General Motors,** LaGrange, Ill., has been promoted to director of engineering and research, succeeding **B. B. Brownell,** promoted to general manager of that division (RA, Nov. 1, p. 43). **H. L. Smith, Jr.,** assistant chief engineer, succeeds Mr. Dilworth as chief engineer.

Charles C. Davis, general manager, locomotive and engine products division, **Alco Products, Inc.,** at New York, has been named president of that division. **Charles D. Sheehy,** general manager, forge and spring division, named president of that division, with headquarters as before at Latrobe, Pa.

Ralph Fifield has been appointed manager, general sales department, **Binks Mfg. Co.**

OBITUARY

The **Frog, Switch & Manufacturing Co.,** Carlisle, Pa., on Oct. 25 announced the death of **Percy M. Beam,** who retired in 1963 as manager of track-work sales.

Roy August Fruehauf, 57, former board chairman, **Fruehauf Trailer Co.,** died Oct. 30 in Royal Oak, Mich.

A. Lynne Graburn, Jr., 59, general coal traffic manager—rates, **PRR,** died Oct. 27 at Bryn Mawr Hospital, Philadelphia, Pa.

William Clifton Wishart, 94, who retired in 1941 as vice president and controller, **New York Central System,** died Nov. 1 at St. Agnes Hospital, White Plains, N.Y.

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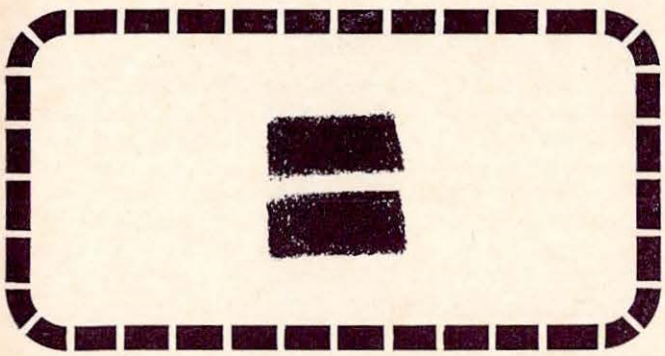

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THE ACTION PAGE

How thrive under semi-socialism?

The railroad industry has no more important unsolved problem than this one: How can it operate profitably as a private, self-supporting and growing business in an environment that is to a high degree socialistic, and is becoming more so all the time?

The machine tool firm, Warner & Swasey, recently had a public-interest advertisement in Newsweek magazine in which it listed "the words men live by" as "patriotism, loyalty, self-respect, decency, honor, work." The advertisement went on to say (in part):

"These are the labels which built this country, saved the world, still feed the hungry and support the old and sick. These things are the only hope of the future . . . Somehow, in spite of the greedy who want something for nothing, most of America is still the land of the free and the home of the brave. Don't anyone dare to try and change it."

Most railroad leaders would agree with these sentiments, but what do we see going on all around us—especially in transportation? In the same issue of Newsweek in which the W&S advertisement appeared was a report on "pork barrel" legislation (specifically, the "rivers and harbors bill"). Of it, the magazine reported that: "Outspoken enemies of federal spending, suddenly struck dumb, line up for their share . . . In all, the bill authorized 144 projects in 41 states. The tab: a cool $1.9 billion." This is the kind of competition the self-supporting railroads are up against, and how are they going to meet it?

They are meeting it, as best they can and with considerable success here and there, by making their operations as efficient as possible (including mergers). So they have been able for several years to hold onto their 43% of the nation's total freight traffic—in spite of the competition of tax-free and tax-aided highways and waterways. But railroads are still the lowest-profit industry in the country. Obviously, since they are getting 43% of the traffic under the present set-up, they would be getting a much higher percentage if all competitors were treated equally, as to taxation and self-support.

No public aid to any carriers?

Wnen A is getting bounteous help from the public treasury and his competitor B is not, there are two ways to equalize conditions for them. That is, aid from the public treasury to A can be discontinued, or similar favors can be extended to B. Railroads have for years advocated the first alternative, with little or no success. And they have shied away from the second alternative, as contrary to the principles of self-supporting private enterprise.

But responsible public officials cannot permit this disparity in treatment to go on forever. As Daniel P. Loomis pointed out in his recent address at Los Angeles (RA, Oct. 25, p. 11), intercity freight traffic is expected to multiply 2½ times in the next 35 years. Hence, if this increase goes largely to the more expensive modes of transportation (attracted by having a large part of their costs paid from the public treasury), then the public is going to pay extravagantly more for transportation service than it otherwise would.

In short, equality of treatment in taxes, regulation, and self-support in transportation is an urgent public necessity. We can't go on performing a large part of our transportation at wasteful expense—and still have the resources needed for improvement in education and other social services. If equality cannot be secured politically by putting modes aided by government on a basis of self-support, then how are some similar concessions to railroads going to be indefinitely avoided? Indeed, there is even more reason for railroads to oppose the subsidizing of some of their customers—by other customers and investors—than there would be for them to accept financial favors from government.

Help for suburban lines

In a few places, various aids to railroad service (e.g., in the operation of commuter lines) have already begun to appear—not because railroads sought them, but because continued railroad service of this kind is indispensable to the public, and some if not most railroads do not have the means to keep it going from their own resources. Besides, what kind of free enterprise conditions do we have, if a business is forced to provide service, not at a reasonable profit, but at an unreasonable loss? Such service, subsidized by shippers and railroad investors, is as much a violation of American traditions of self-reliance and self-support as would be an outright subsidy from government.

So far as their patriotic duty is concerned, railroads are under moral obligation to contribute to national economy in transportation—and one means to this end is to seek equalized competitive conditions among the several modes. If railroads cannot persuade the authorities to establish this equality by taxing and regulating all modes on the same basis, and taking the hands of all modes out of the public till, what then? Some able railroad managers believe their ability to compete effectively would be adequately restored by greater regulatory freedom. But this one important step toward competitive equality would not be sufficient for all railroads—particularly those heavily involved in the passenger business.

It is imperatively in the public interest that railroads should take whatever steps are possible and necessary to enable them to attract that share of the traffic to which they are economically entitled (all costs considered).

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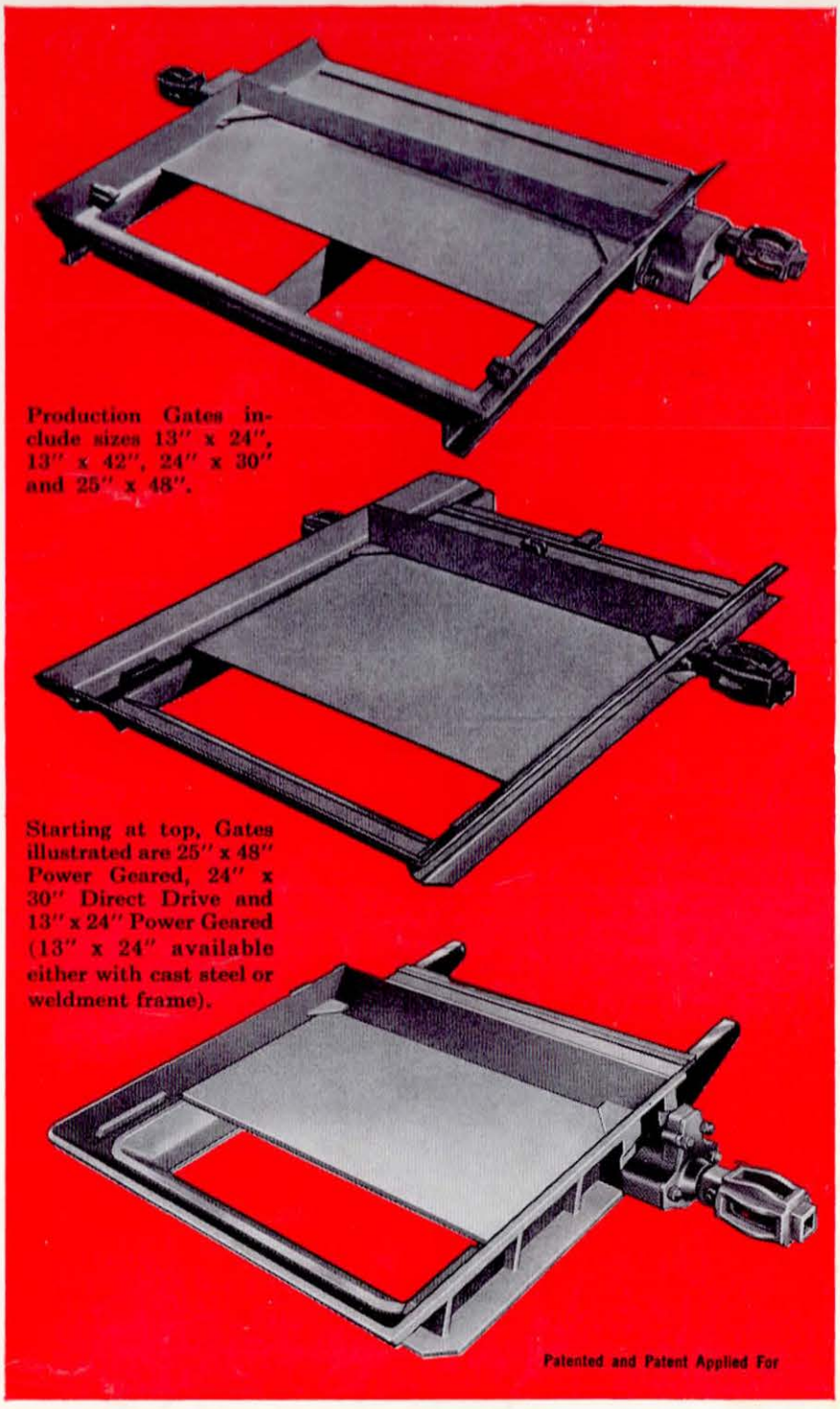

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